

BUILDERS' HOMES

for Better Living

A. QUINCY JONES

FREDERICK E. EMMONS

John L. Chapman, Associate

sketches by Rudy Veland

REINHOLD PUBLISHING CORPORATION



NEW YORK

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To JOSEPH L. EICHLER,
a truly progressive builder, whose untiring efforts have advanced greatly
the concepts of today's development houses, this book is respectfully
dedicated.

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Printed in U.S.A.

Library of Congress Catalog Card No. 57-11776

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1

◀ Japanese



2

◀ Mexican



3



4

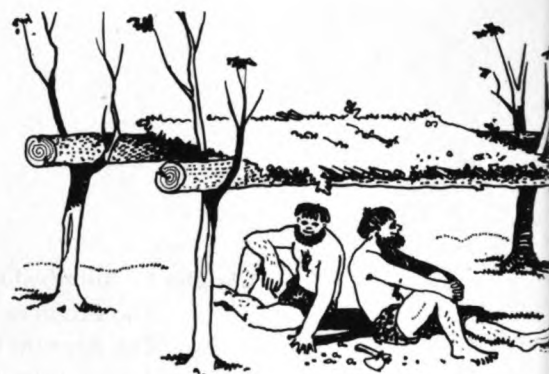


5

◀ Traditional



6



Builders' Houses

7

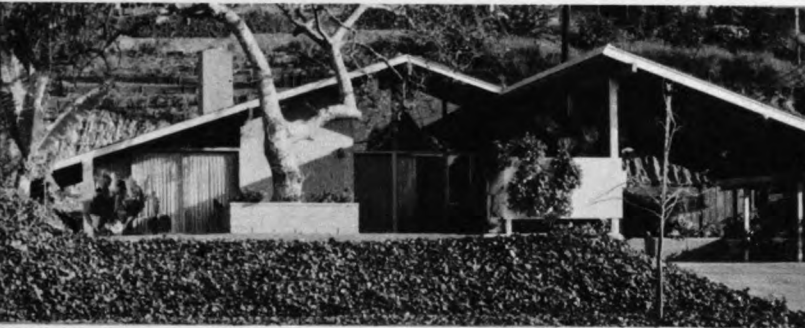


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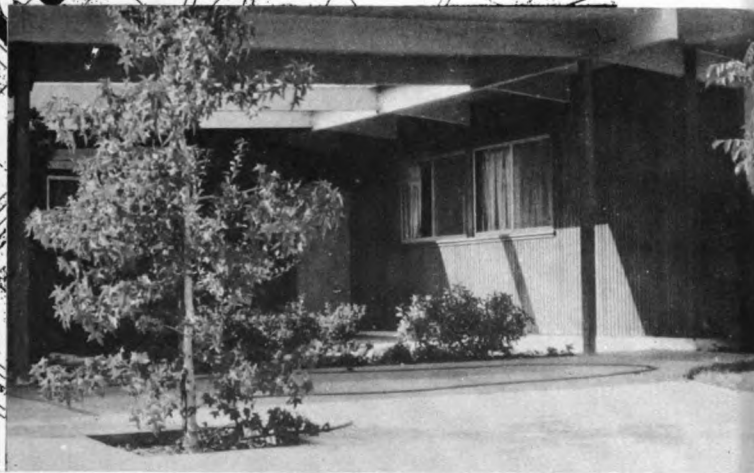
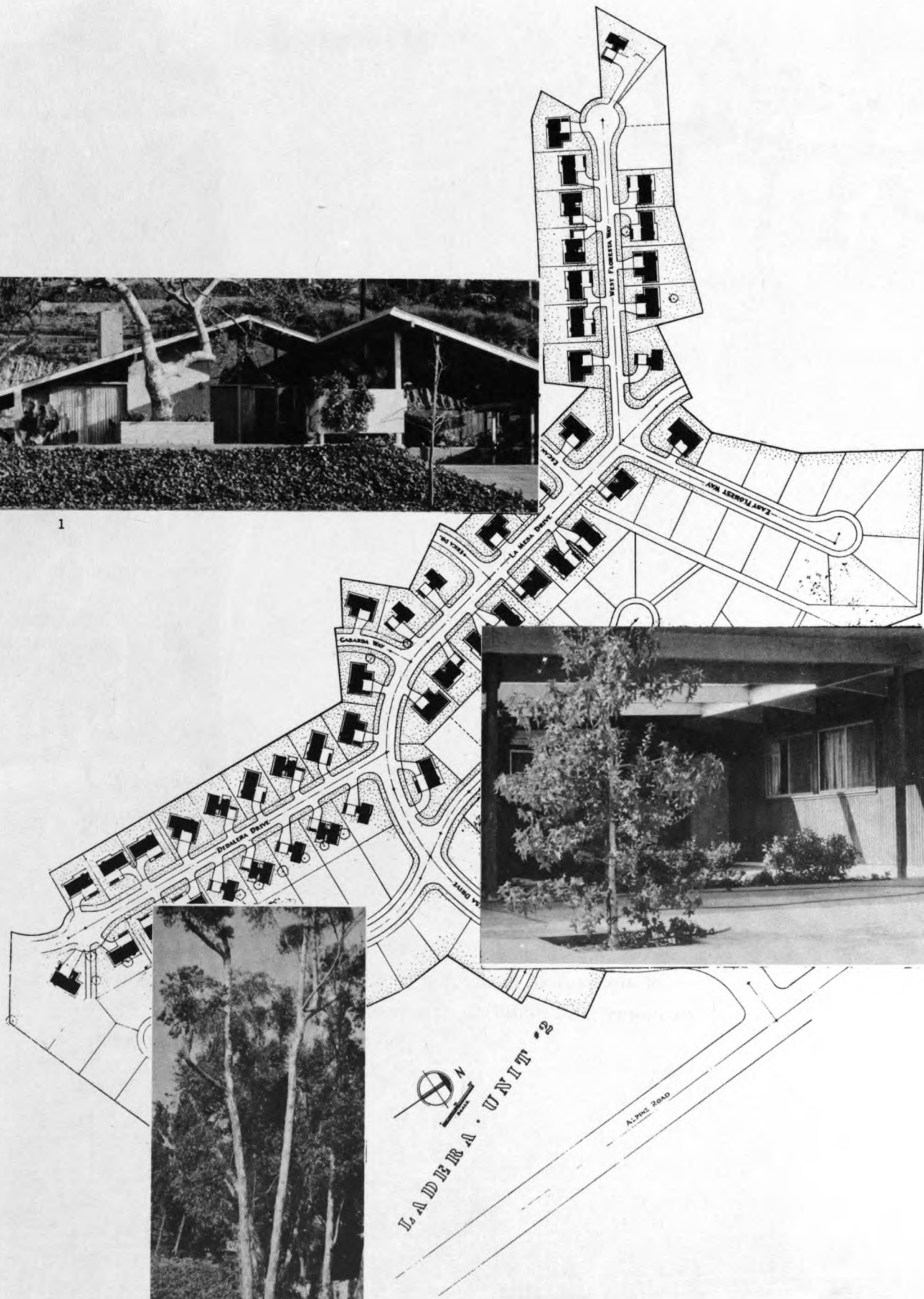
Chapter I

INTRODUCTION

Historically, a place to live, as with the contemporary architecture of any period, is affected by its society, religion, geography, economy, and materials. These should be, and are, the criteria for good design today and tomorrow.



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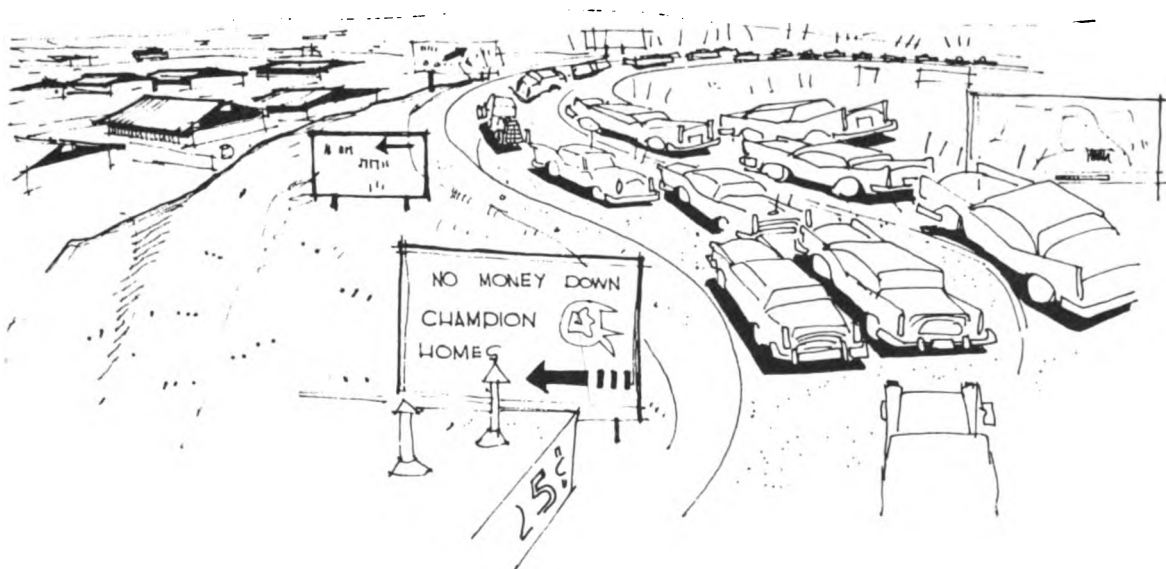
THE PROBLEM

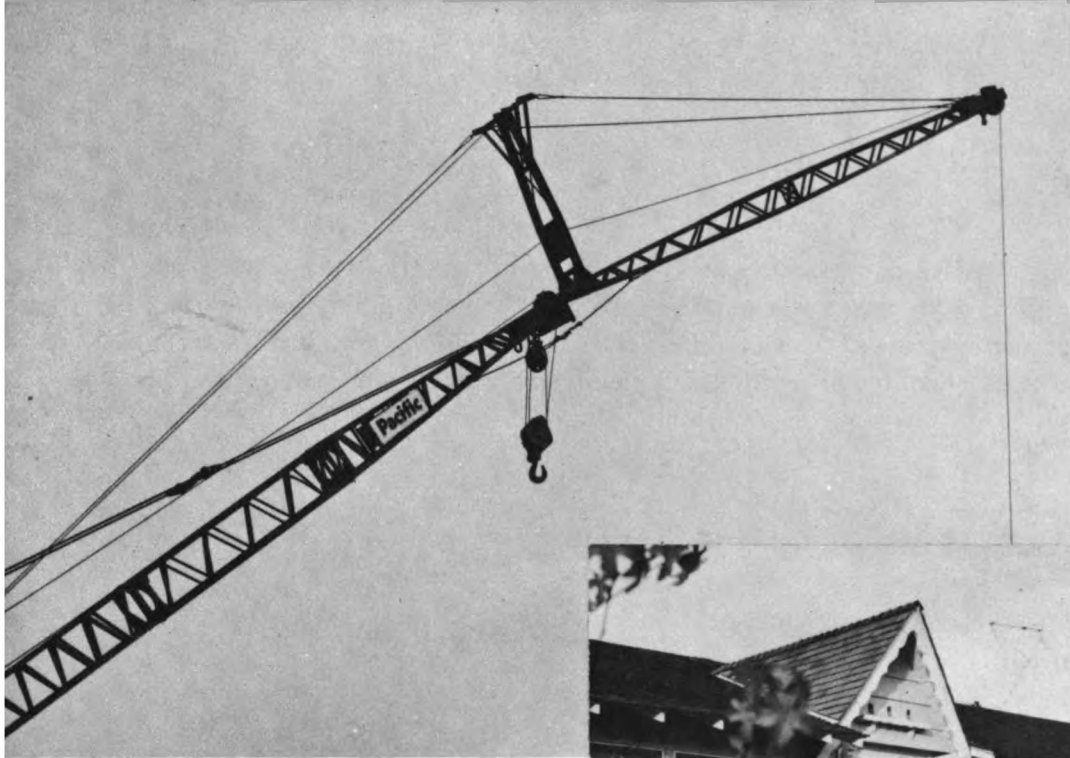
The tract house, in recent years, has become an increasingly familiar sight in every state of the Union. Since World War II, the phenomenal growth of the home building industry is evidenced by the construction of more than a million homes a year and this continual expansion has produced a myriad of problems reaching into nearly every phase of human activity.

THE EXPANDING SUBURBS

Today, more than half of all American families own their own homes, the great majority of which were purchased from a speculative builder. Most of these homes are concentrated in suburban towns whose sudden and overwhelming growth in population is staggering in its implications.

These masses of houses, repeated in varying degrees on the outskirts of nearly every major city in the land, are almost always superimposed upon inadequate existing systems of transportation, schools, highways, utilities, law enforcement, fire protection, and other community facilities. Without proper regulation and control they contain all of the potentialities for the ultimate destruction of irreplaceable natural resources and the steady transformation of a once pleasant countryside into a sort of suburban slum.





1

Industrial Technology



2

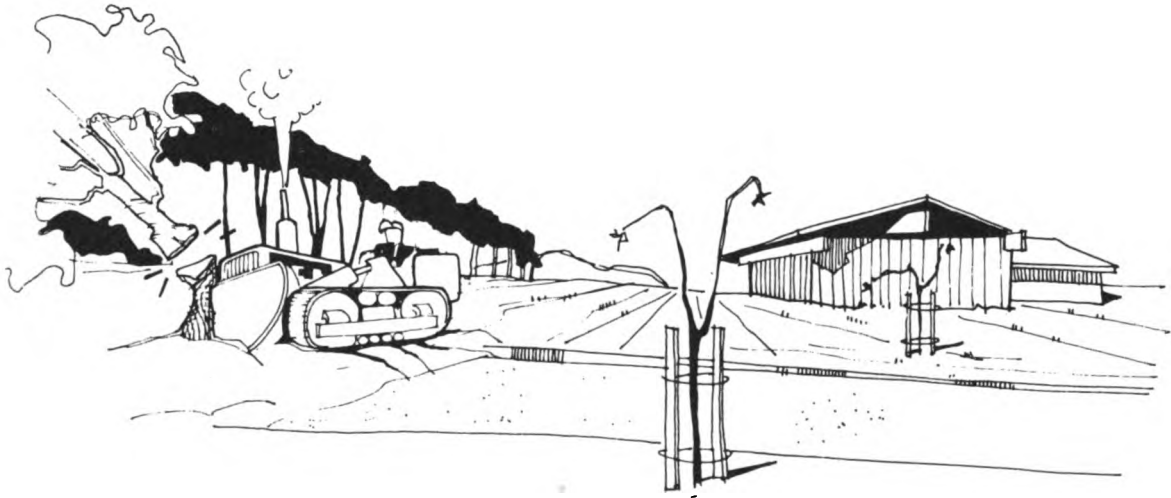
Handtool Results



3

PAST MISTAKES

Tremendous tracts have been laid out on street patterns based entirely on getting the greatest number of lots per acre. Entire forests of trees have been ruthlessly destroyed to make building operations easier. Hillsides have been permanently scarred by thoughtless grading with a consequent increase in flood hazards through the destruction of the natural ground cover. Inadequate land areas have been allotted to school, church and recreational sites. The houses themselves have been built to outmoded, uninspired designs, with little thought having been given to their relation to the site.



THE EMPHASIS ON TECHNICAL PROFICIENCY

In this highly competitive field, as in many other aspects of American life, the increased efficiency in production through technical improvements has been immense. Ingenuity and research have developed a great variety of labor saving devices and building methods. New materials have been produced, and manufacturers of appliances and equipment have introduced new and better products for this ready-made mass market. But the over-all problem of applying this technical ability to the end product—a pleasant, well rounded, and stable community environment—far from being solved, has, with relatively few exceptions, barely been approached.

THE NECESSITY FOR A SOLUTION

In recent years, the factors of sales resistance, economic competition, and practical necessity have tended to rectify the errors of the past, but it is increasingly apparent that if the home building industry is to continue to influence the lives of millions of Americans, the problem, in all its aspects, must be recognized and solved in a manner commensurate with its importance.



1

From Farm

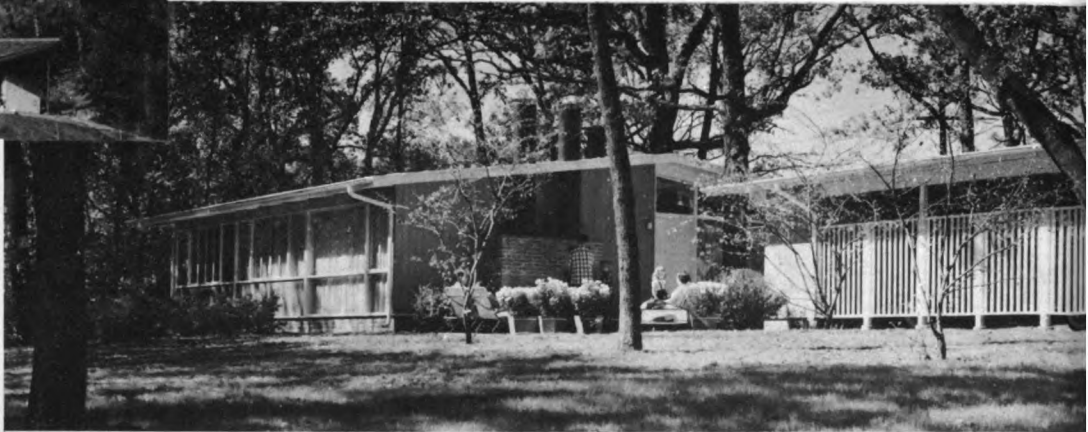


2

to Suburb



3



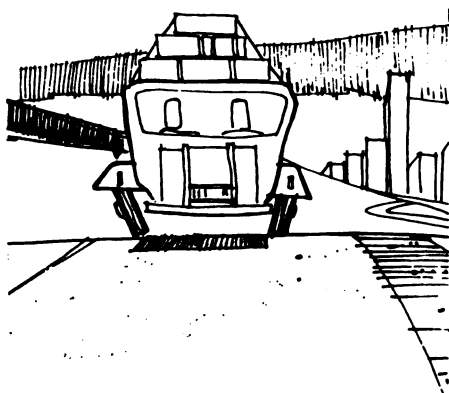
4

5



THE REASONS FOR GROWTH

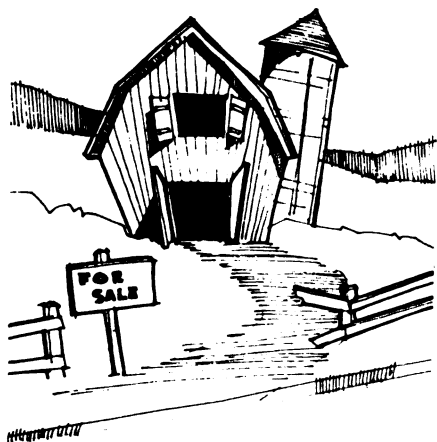
Because such a large proportion of dwelling units today are constructed by the merchant builder, it follows that the prevailing forces in American life, which increase the need for housing will, at the same time, expand the market for the builder's house. This expansion has been brought about by a combination of conditions, both sociological and economic.



SOCIOLOGICAL FACTORS

Migration

The movement of people from place to place in their search for better living conditions, is a potent factor in the demand for new homes. In recent years, nearly five million people have migrated across state lines each year, while in the same period of time over twenty-four million people moved to a new location in the same state; most of them with the suburbs as their destination.



The Movement From The Farm

This trend to suburbs, and in effect to development houses, is augmented by the decreasing necessity for farm workers as agriculture becomes more mechanized and productive. As a result, since 1950 the number of farm households has been decreasing at the rate of approximately 150,000 a year. As higher paid industrial jobs have become available, farm workers have migrated toward the centers of industry, and with their increased purchasing power, have become potential buyers for the builder's house.



1

2

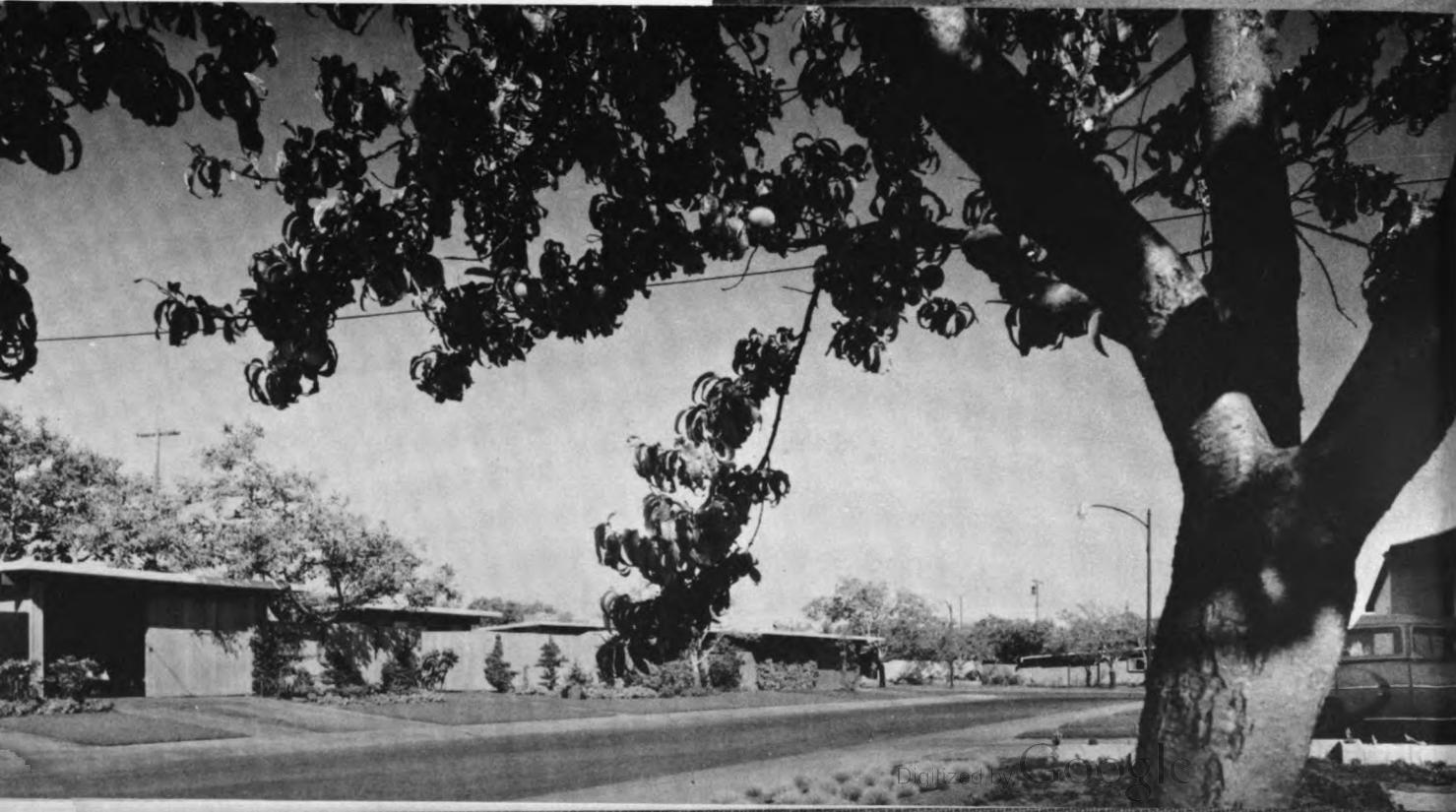
From City

3



to Suburb

4



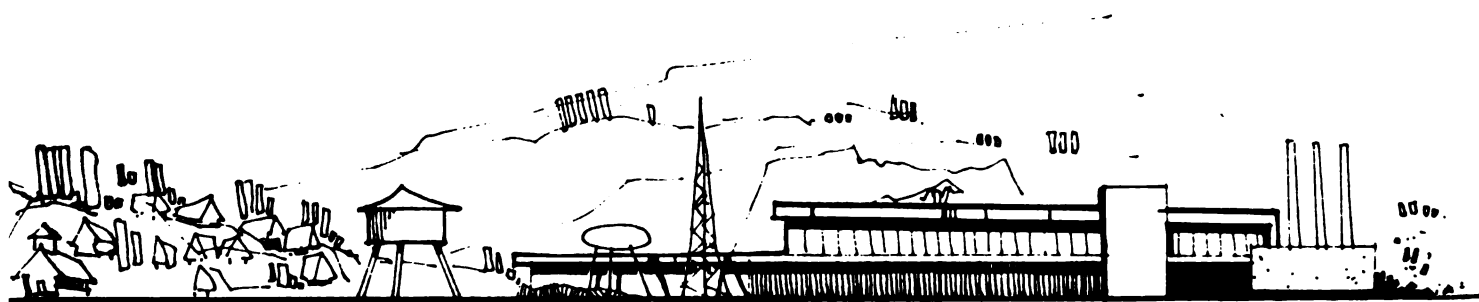


The Movement From The Cities

City living, with its lack of outdoor recreation space and privacy, has many obvious disadvantages. Given the means, parents are eager to provide for themselves and their children the freedom that can be found but rarely in a city apartment. While it is true that new urban developments are beginning to produce living conditions far superior to those now available to the average family, most people still want to own an individual house on an individual lot, even though it involves the purchasing of a builder's house which, in itself, may leave much to be desired.

The Decentralization Of Industry

People follow jobs and vice versa. As new industries continue to spring up in sections of the country formerly devoted to agriculture, a demand is created for housing in their vicinity. Similarly, in the competition for skilled workers, new plants are being located in suburban towns as an attraction for desirable employees and, as a result, more people are added to the home buying potential. This increased population creates a need for establishments devoted to providing goods and services, whose employees in turn must be housed nearby.





1

City Congestion

2



Tract Community Park

3

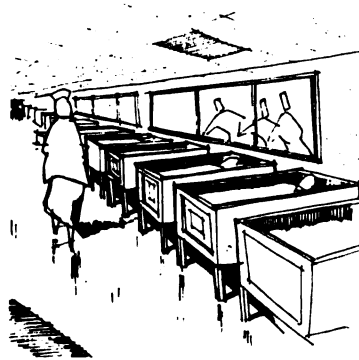


New Families

America is a growing country, and its population is increasing at a constantly accelerating rate. The current high birth rate and the continual formation of new families, resulting from an average of a million and a half marriages per year since 1946, account for one of today's major reasons for the demand for houses. From this group, 650,000 or more couples may be expected to seek their own homes each year.



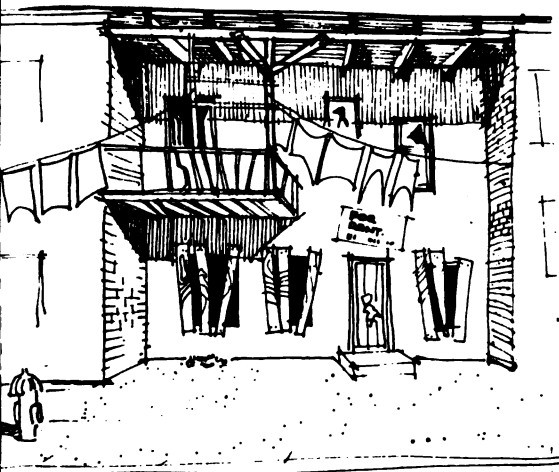
AND



650,000
ADDITIONAL
= HOMES
EACH
YEAR

Obsolescence

Houses as well as neighborhoods tend to deteriorate for a variety of reasons, but whatever their life span, a point is inevitably reached when the living conditions that they afford can only be classified as sub-standard. With a total of nearly forty-five million non-farm dwelling units in the nation, even the most conservative estimates classify seven million of those units as below the minimum standard for human occupancy. To eliminate this inadequate housing alone would require 350,000 new homes every year for twenty years, without taking into account the vast number of homes that become obsolete and must be replaced annually.



\$1,450 GI equity. 3-bedroom. 1½-bath brick. 1 Bedroom off kitchen suitable for den. Real clean. Vacant. Move in. \$12,750. 2 Doors bus. ½ block school. **BILL FORRESTER. DA7-8062.**

225 DUNLOE—Like-new. 3-bedroom brick. central heat, lovely yard. Can be purchased below actual value. Owner gone. **DA1-6401. TA7-1908.**

CASA LINDA REALTY

4111 SHILOH ROAD—fenced; near schools bus. Assume 4 per cent. 1.700 for \$2,100 equity. **DA7-1680.**

BRICK 2-bedroom home—nice yard, trees, paved close to bus and possession. \$11,950. **ANCEY CO. Nites. F**

★ ★ HOMEY 2-bedroom—br's colors; asking and second lien.

MARGARET

DA7-9271

FOREST HILLS CHAPEL—Bedroom brick; 1½ carpets, log fireplace. an; 2-car garage. **anced. DALE COPUS**

VACANT—OPEN

706 BARNES BRIDGE—3 Bedrooms, large kitchen. Private; fence. Good financing. **DA7-2997 U. S. FOX EV1-5137**

★ ★ SPLIT-LEVEL CONTEMPORARY—3 Bedrooms, completely air-conditioned; trees. **UNDER \$30,000.**

MARGARET KITTRELL

DA7-9271

NEW 3-bedroom brick, 2 baths, large kitchen; excellent location. Appraised 19,300; make offer with \$1,300 cash. Special reduction to Mason. **DA7-2869, BR9-2325.**

BEDROOMS, 2 baths, den-kitchen, built-in range-oven. A/C entry, \$13,500. ready financed. **DALE COPUS, A4-3697.**

ELL GI equity, \$1,695 cash. Beautiful bedroom, 1½-bath, brick home. 65'x200' redwood-fenced yard, central heat, etc. **353 Lockhart. DA7-9190.**

% DOWN PAYMENT, 2 big bedrooms, en, fireplace, 2 car garage. Near Hexter school. Vacant. \$8,950! **DALE COPUS, A3-6172.**

TAKE OFFER, pick up 4½% loan. Bedroom, 2-bath, den, electric kitchen, replace, A/C, carpets. **OLA HENRY, M3-3427, DA1-2024.**

900 DOWN—3 Bedrooms, den, fireplace; breezeway, 2-car garage, trees. Near Hexter School. \$13,950. Vacant. **DALE COPUS, A3-6172.**

TWO BEDROOMS, 2 baths, den; brick, extra large rooms, attic fan, disposal.

You Best Buy

IN

GI—FHA or Conventional

brick and Holiday stone 3-bedroom, den, full tile baths. Shingle room, pier and beam foundation. All-electric kitchen. Walking distance grade, junior and high school. All churches and shopping near by. North of Oates Dr., off Peavy Rd., to Dream Home.

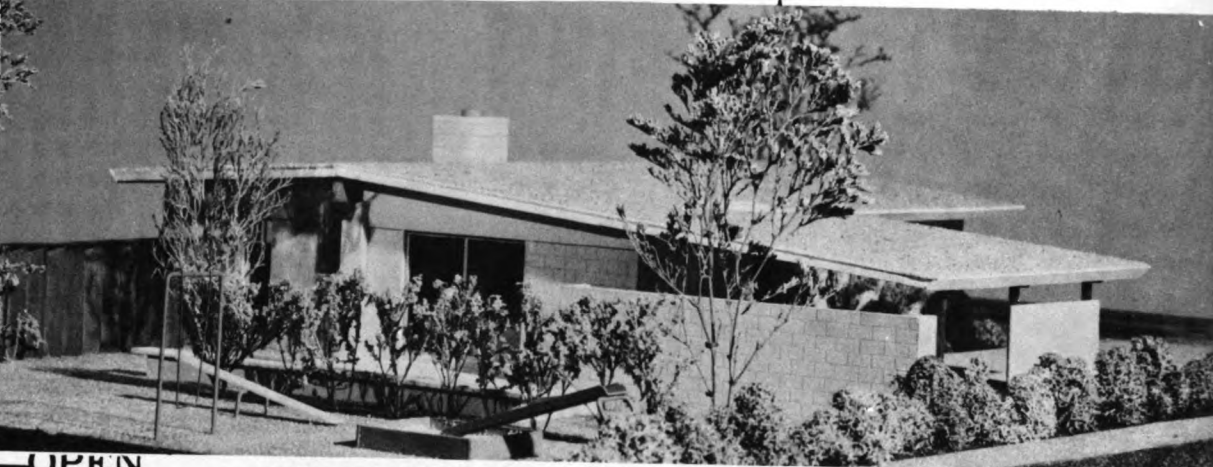
Manning & Davis Builders

Suburban

Miscellaneous

S-36

Vet or FHA



- ★ 1 and 2 FULL BATHS
- ★ 3 BEDROOMS OR 2 BEDROOMS AND DEN
- ★ PATIO
- ★ 1- and 2-CAR GARAGES
- ★ 70-FOOT LOT
- ★ FENCED BACK YARD
- ★ FAMILY ROOM
- ★ SLIDING GLASS DOORWALL

No Monthly Payments

Till February

Approx. \$400 Cash

Moves You In!

\$10,700 to \$13,750

MODEL HOMES OPEN

8 A.M. to 8 P.M.

DIRECTIONS: From Field Circle drive north on Highway 77 to Valley View Road. Turn right on Valley View to school at Josey Lane. Left on Josey, watch for General Housing's Hospitality House for free literature, information, guided tours.

CHapel 7-3820

General Housing Company

VETERANS

New Section Now

Digitized by Google

ECONOMIC FACTORS

Long Term Financing

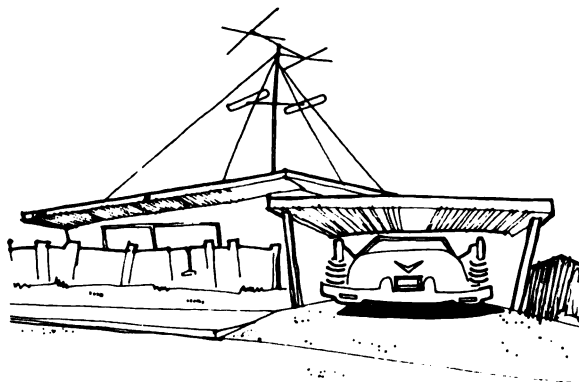
The home building industry is completely dependent on the ability of the builder to sell his product at terms to fit the buying power of as many people as possible.

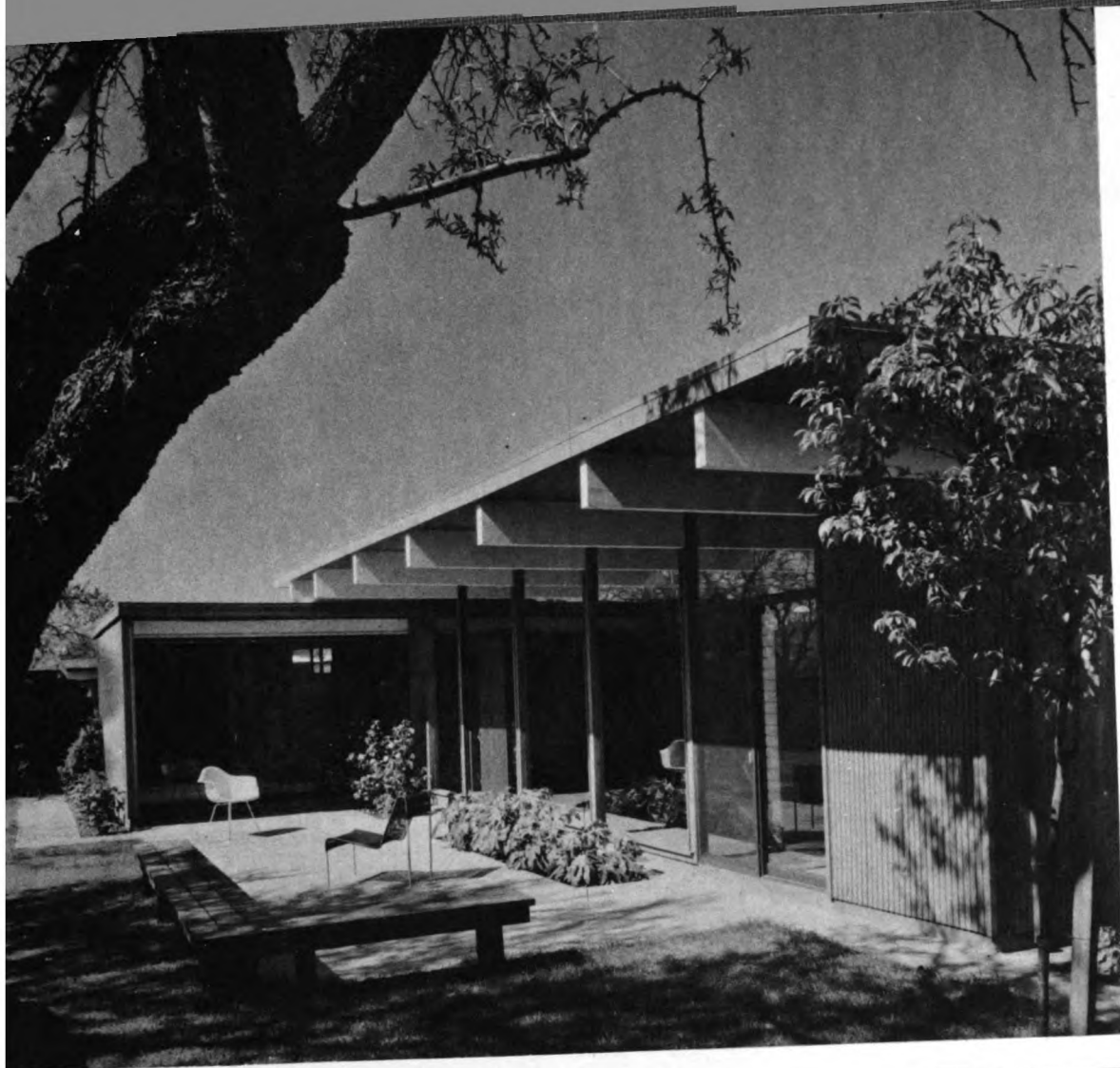
The greatest single factor which has enabled the sale of merchant-built houses to achieve its present proportions has been the availability of the long term, small down payment, amortized mortgage loan. This has made it possible to own a home on the basis of monthly payments which are often less than the rental for comparable living space, and has in consequence, put the builder's home within the reach of millions.



Higher Standard Of Living

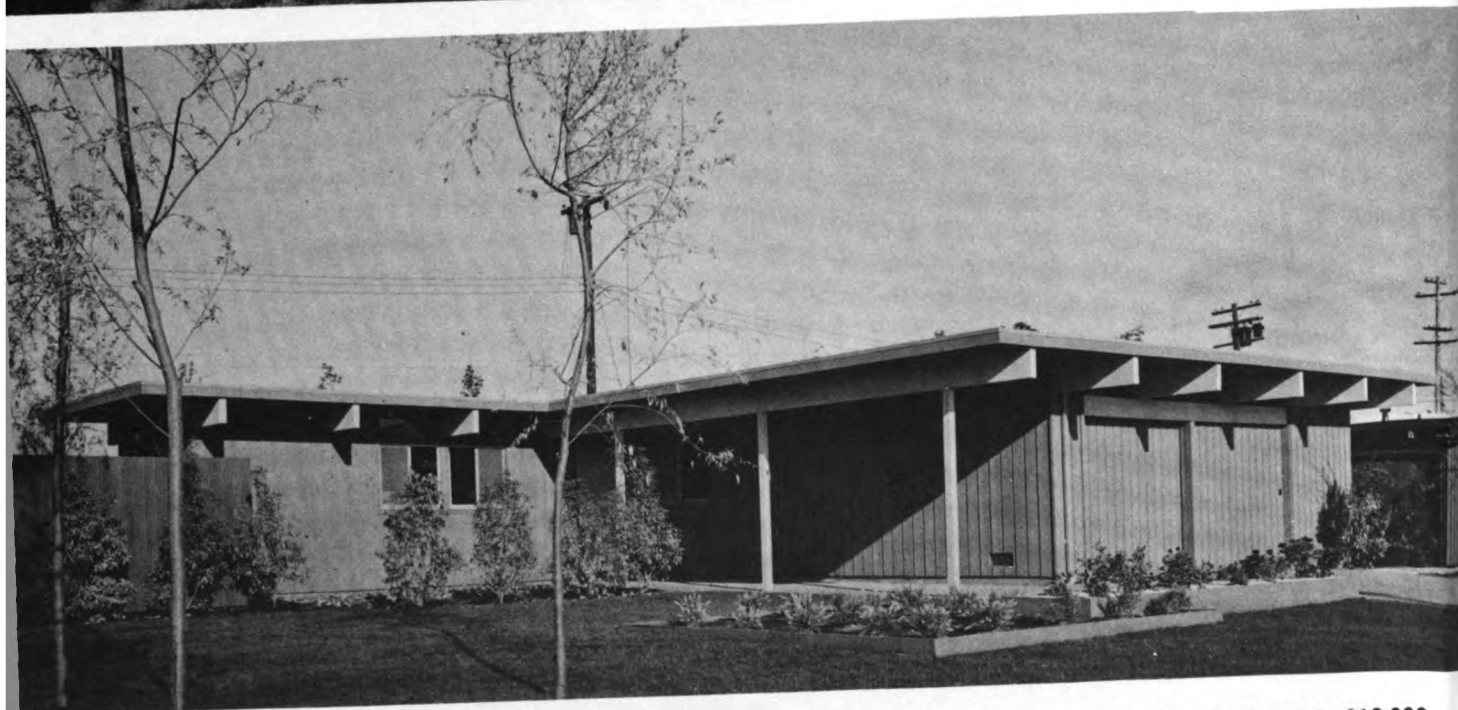
The prosperous years since World War II have given most Americans higher earning power which has vastly increased the number of families able to afford the purchase of a new home. In addition, people have tended to move into larger and more expensive houses as their incomes have risen, a change made easier by the higher resale value of their previous homes.





1

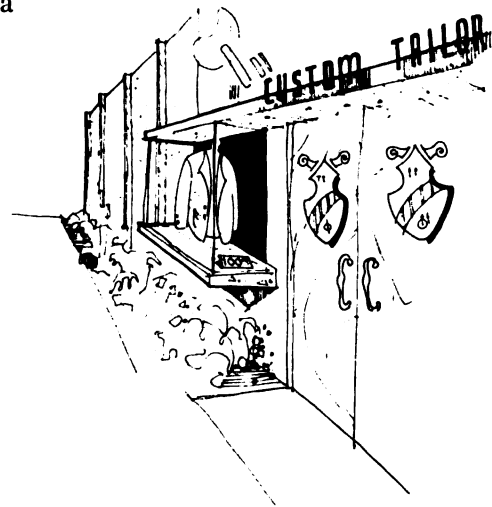
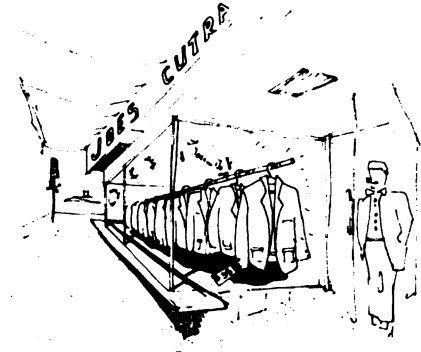
2



Merchant Built	(including lot, utilities, streets)	Approximately \$18,000.
Custom Built	(house alone)	Approximately \$21,000.

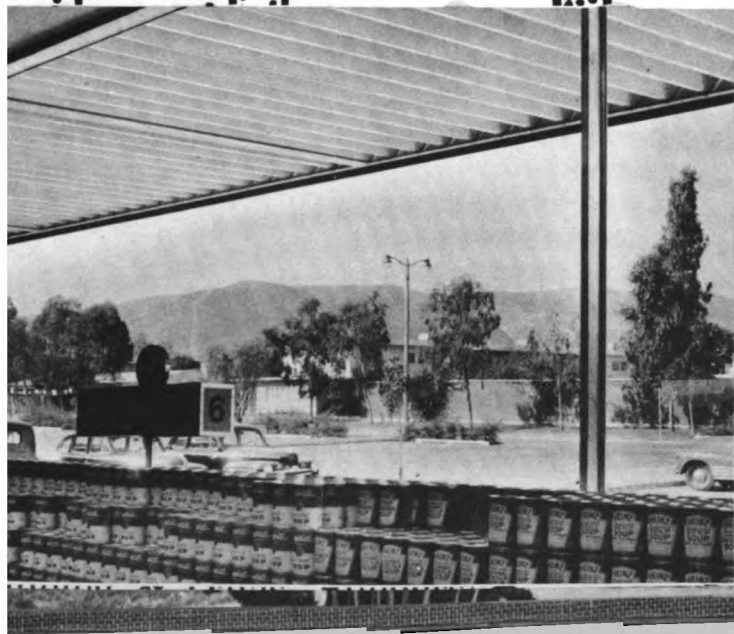
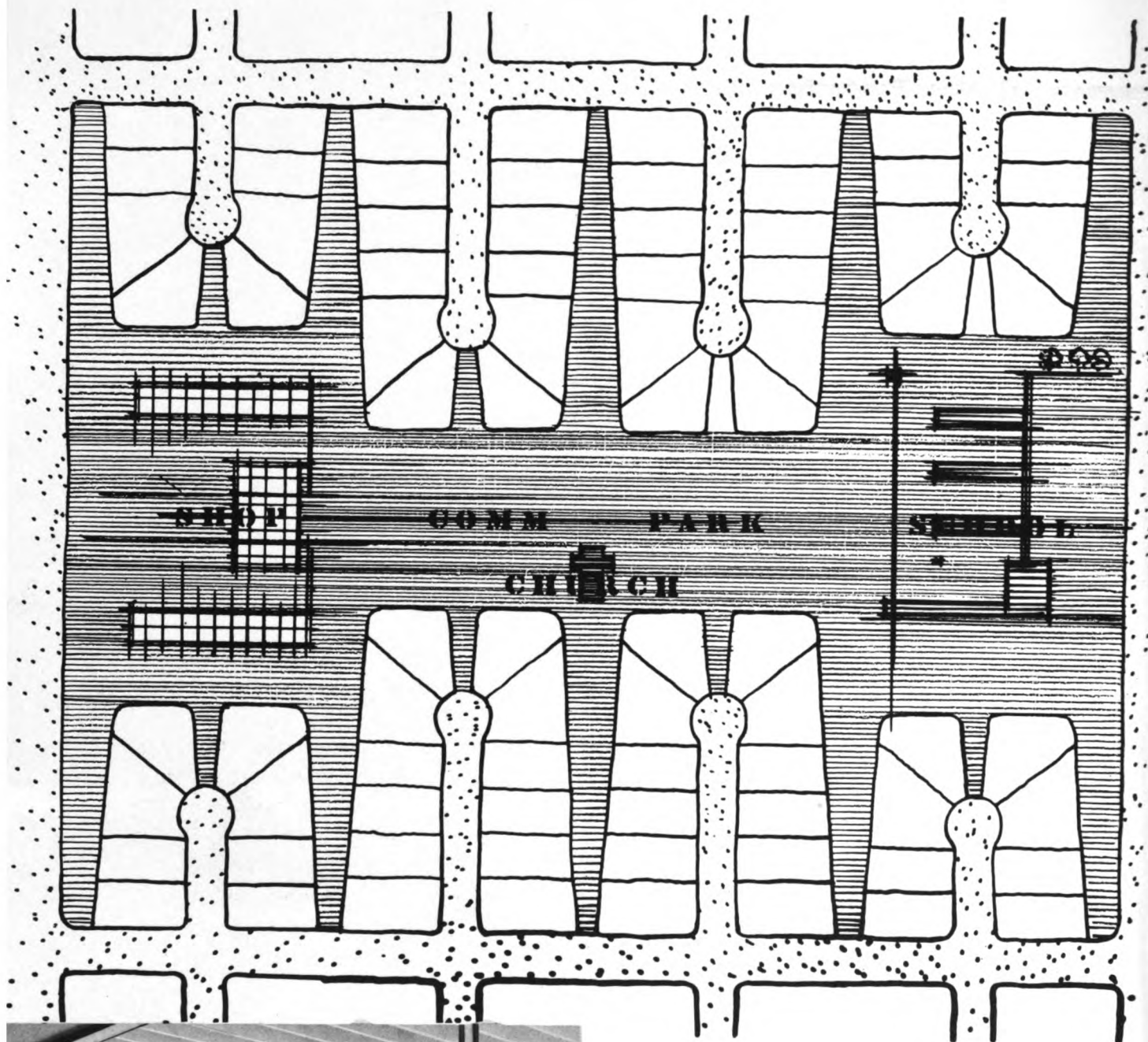
Economies Of Mass Production

The merchant builder is selling considerably more than a house. His product is actually a package consisting of land, streets, utilities, landscaping, appliances, and a mortgage loan, as well as the necessary technical and professional services. Through mass production and efficient organization, each of these items may lend itself to savings which, in total, bring the cost of a home within a price range many people can afford. Tracts of land, developed with streets and utilities on a large scale, can be subdivided into lots at a cost which could not be duplicated individually. Mass production methods of construction, preplanning and large volume material buying, can produce increasing ratios of saving as the number of the houses increases. Engineering and architectural fees, and the cost of technical research, can be amortized over a great number of houses.



Decline Of The Custom Built House

Along with the growth of the merchant builder's house, there has come a proportionate decline in the size and number of custom designed houses. The forces which encourage home building exist to an equal degree for the individual house, but steadily rising costs are slowly but surely making such a home prohibitively expensive for all but the wealthy. As a result, the prospective home owner of moderate means is likely to be limited in his choice to the product of that merchant builder which most nearly satisfies his requirements.



The Pocket Community

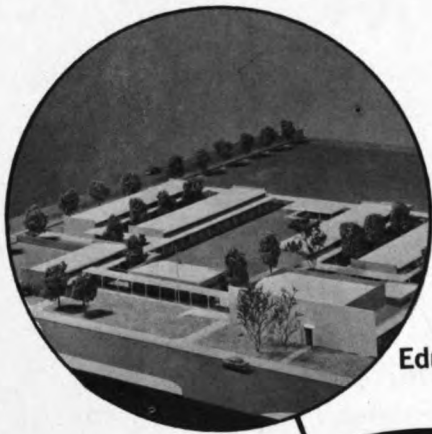
An Integrated Community

A DIRECTION AND A GOAL

As long as the foregoing conditions exist, the builder's house will continue to be constructed and sold. And since the welfare of the community is strongly affected by the manner in which this is done, it is essential that the accepted practices in the home building industry be re-evaluated and improved if solutions are to be found for the problems that this continually expanding mass housing will entail, and which, in many instances, are already acute.

The answer must be a product of the combined efforts of not only the builder, his architect, engineers and site planners, but also governmental authorities and the lending agencies as well; starting at the regional and community level, with the end product being an integrated and vastly improved pattern of living.

Millions of people want to own a home, but the only resource of the buyer who cannot afford the luxury of a custom designed house, is to be selective in his purchase—and usually he has very little choice available. His goal can only be answered in one way; better living. It will never be achieved through the continued construction of uninspired collections of houses unrelated to their sites, depressing in their superficial attempts to avoid repetition, and lacking integration with the surrounding community. It can be found only in homes which not only recognize the potentialities of modern life, but which are so located in relation to their neighbors and to the sources of recreation, shopping, education, and worship, that they truly fulfill the aspirations of their owners.



Education



Industry



Office



Home



Pre-School



Religion



Play

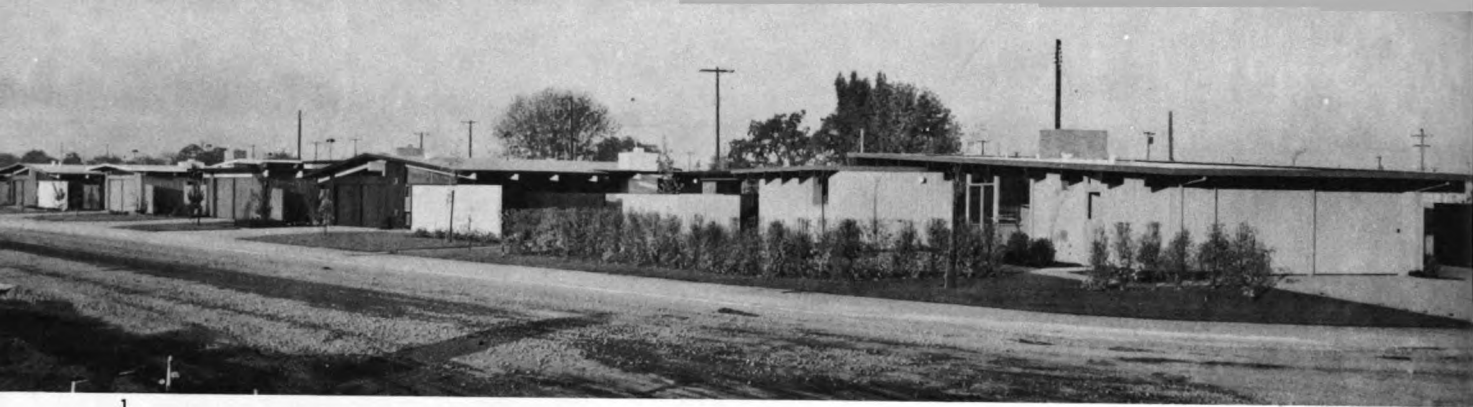


Shop

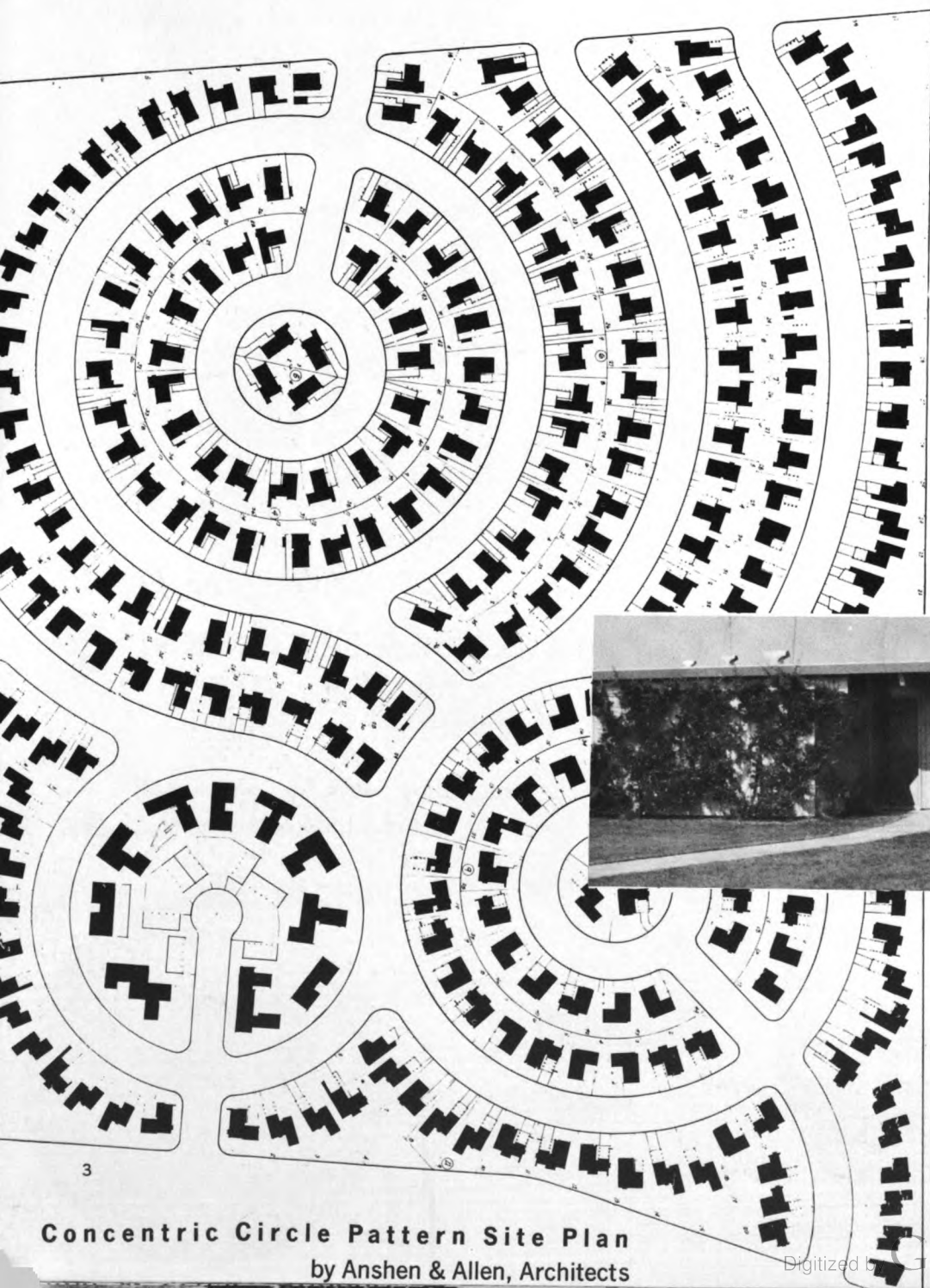
Chapter II

THE PLANNED ENVIRONMENT

The facilities to learn, worship, shop, work, and play are all a part of living. The best home is a part of a total community...



1

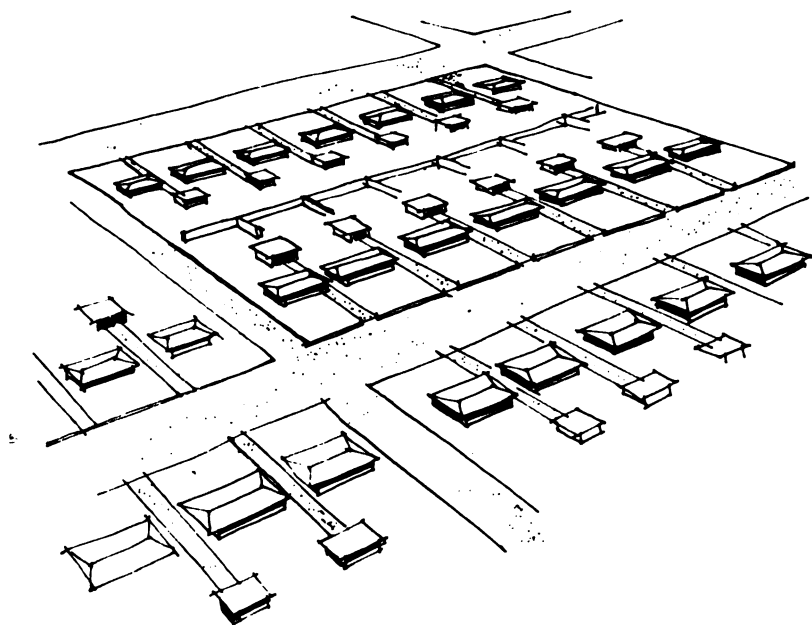


2

Concentric Circle Pattern Site Plan
by Anshen & Allen, Architects

THE PREMISE

Certain agreements must be reached, or at least a certain point of view must be understood, before discussing the planning of a merchant-built development.



If one is willing to accept the usual method of land development prevalent today, that of dividing the area into the maximum number of lots per acre compatible with local zoning laws, there is not much room for planning better communities. With this approach, try as we may, the most efficient layout will almost always result in a grid plan which provides rows of identically shaped lots in a pattern familiar to everyone. This method can hardly be expected to produce any result except unrelieved monotony, a fault admitted by every builder and obvious to every buyer. It might be said that every bit of life has been squeezed out of the land, but it cannot be said that every bit of good business for the builder, or good living for the buyer, has been produced.





Work

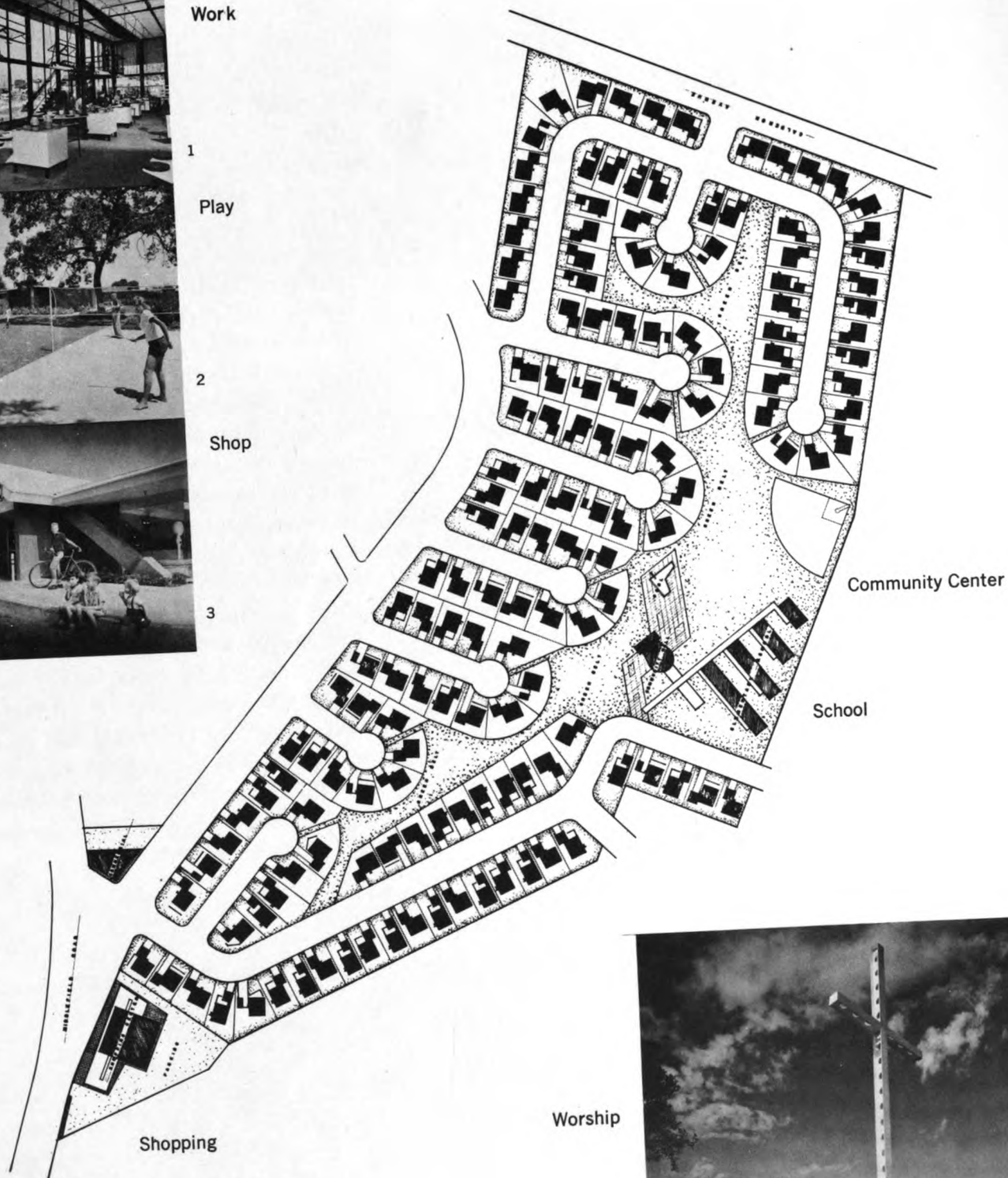
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Play

2

Shop

3



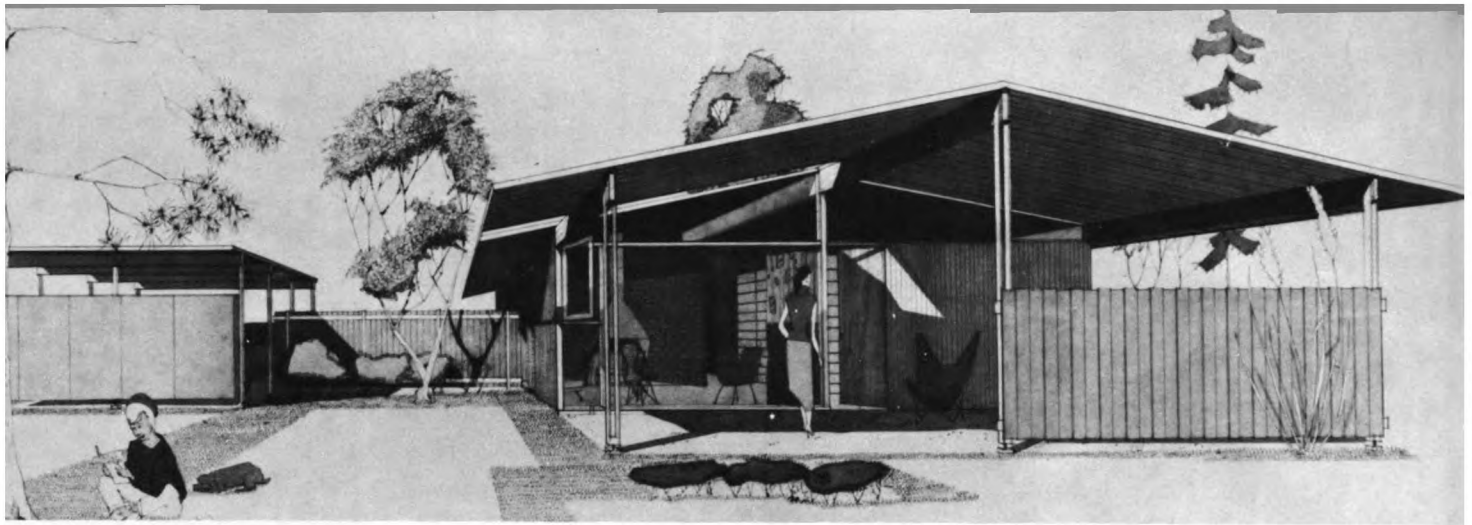
Greenbelt Scheme



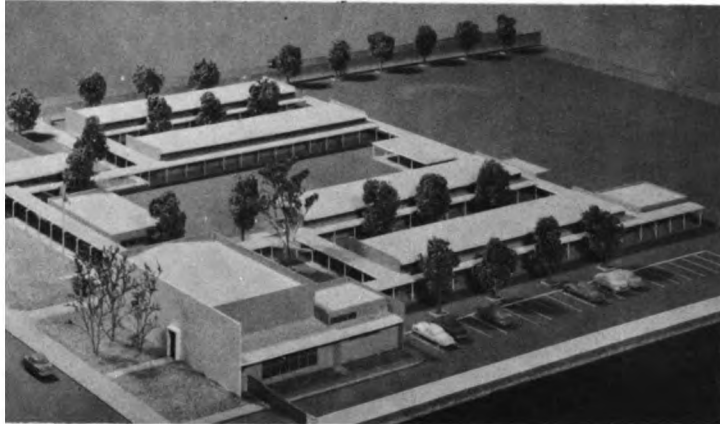
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This chapter is written on the assumption that many basic points of philosophy are equally important to both the builder and the buyer. In the belief that good communities help make better cities, some of the more important considerations include the following:

- A good house alone is not enough.
- The logical community is properly related to the place of employment of its residents.
- The complete community provides facilities for education, worship, shopping, recreation, and play.
- The livable community is based on consideration for pleasant esthetic experiences.
- The well-planned community allows its families to live conveniently, comfortably, and safely.
- The well-conceived community is an integral part of the over-all city or regional plan.
- The total community considers and includes all of the above.

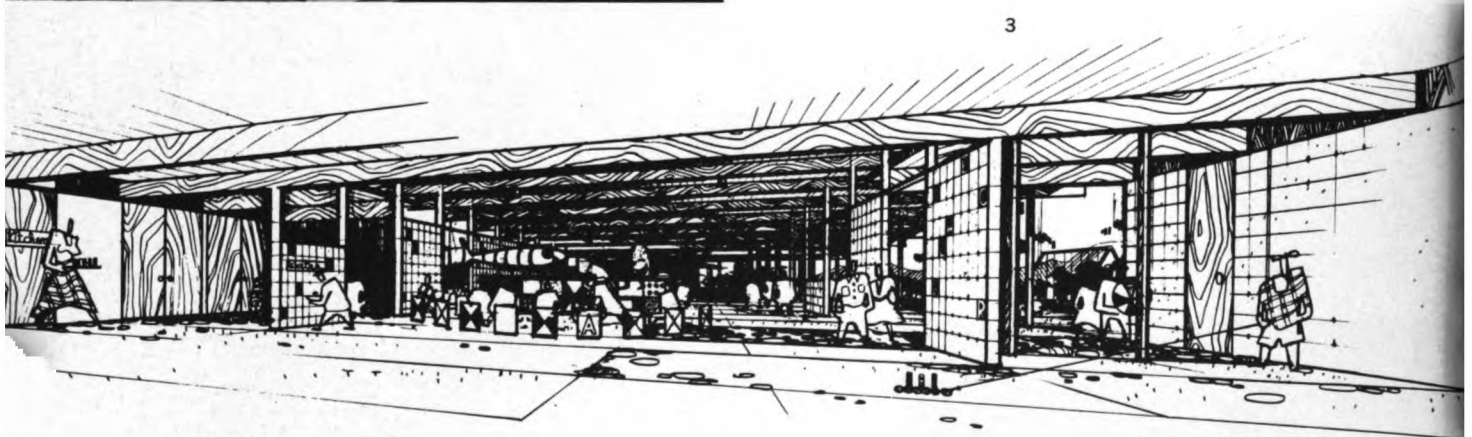


1

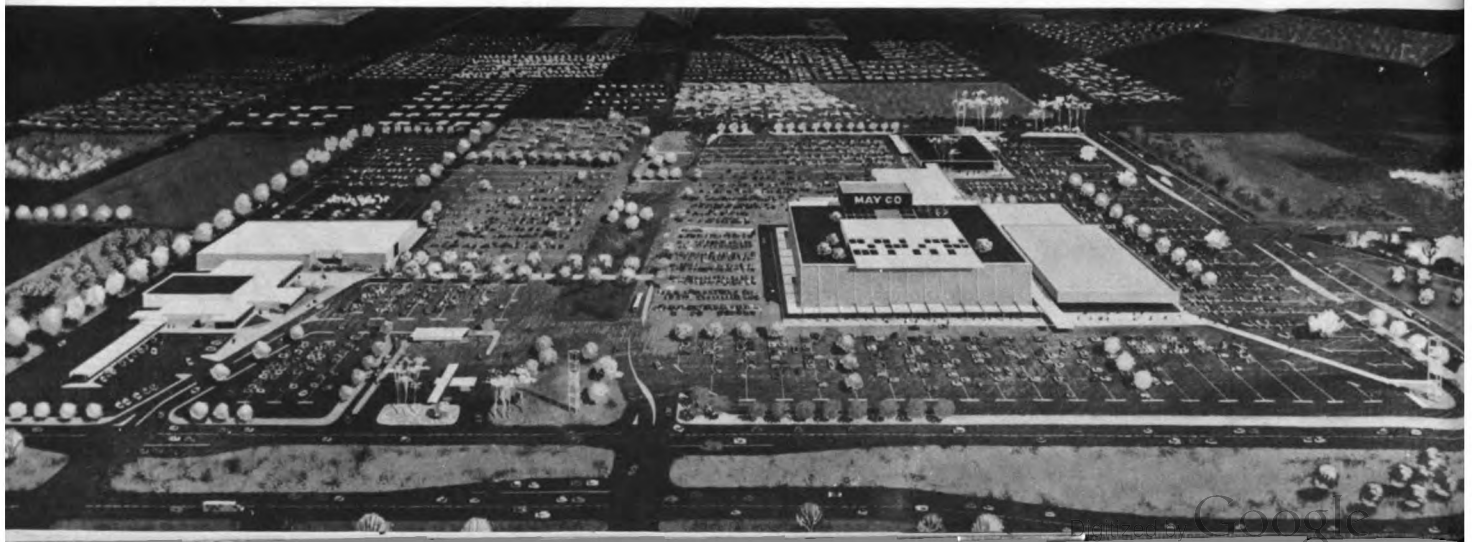


2

4 at bottom



3



THE COMMUNITY

From the buyer's point of view it can be assumed that he will not resist the builder's attempts to provide the best planned and most complete community conceivable. However, in some cases, surprisingly enough, it may be necessary to conduct an educational program to convince him of the advantages involved, since the majority of examples from which he can form a judgment are complete neither in concept nor execution.

From the builder's point of view it is necessary to convince him, through simple arithmetic, that dollar-wise he gains by producing such a complete community. It is no discredit to the builder that he must make a profit, since none is rich enough to undertake a large development on a purely philanthropic basis. After all, most of the material things which have raised American living standards to such a high level, have been the result of business methods based on the profit system.



ASSUMPTIONS

Land \$5000.00 per acre
5 houses per acre
Equal utility cost per unit

GOAL

\$1000.00 PER HOUSE PROFIT

Example A



50 ACRES ALL HOUSES

250 Houses at \$1000

= \$250,000

(Profit)

(If all goes well)

1

Example B



40 ACRES OF HOUSES

10 ACRES COMMERCIAL

200 Houses at \$1000

= \$200,000

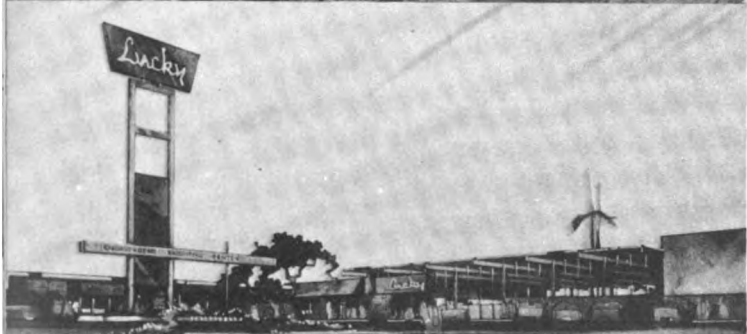
**Commercial Land
Increased Valuation**

10 Acres at \$15,000

= \$150,000

Net \$350,000

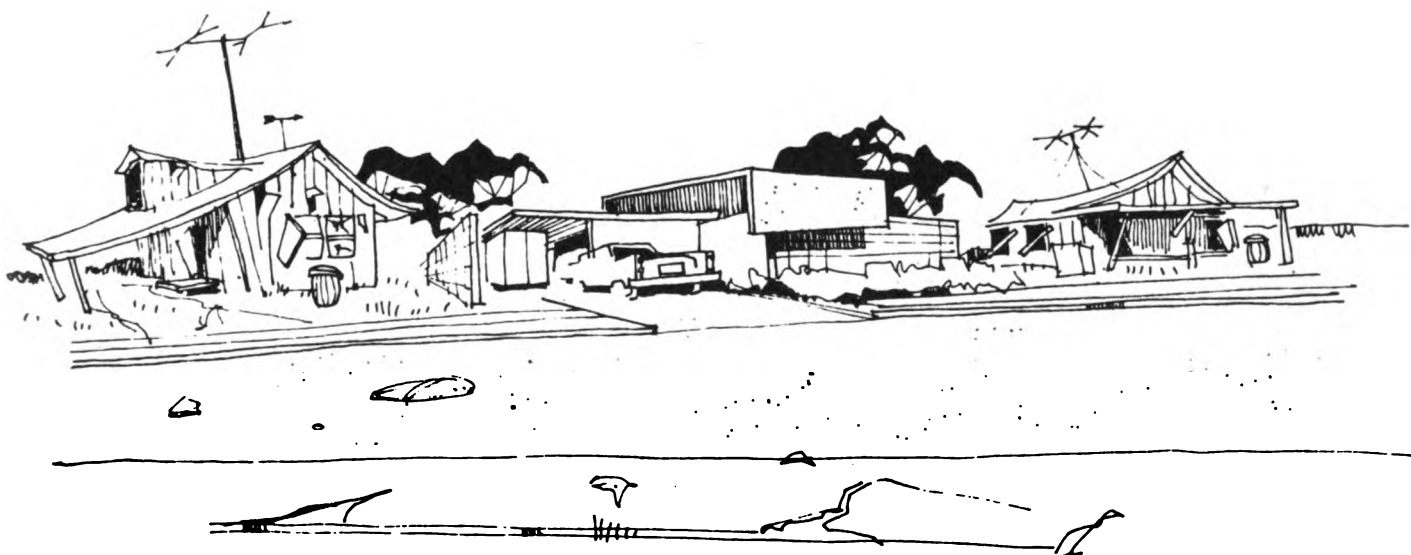
(Profit)



2

The chart on the opposite page shows that, with a given number of acres of raw land, it is possible for the builder to build fewer houses with increased profit and, at the same time, provide the amenities required for a full way of life. Unquestionably, developments of this type will be easier to promote as the appreciation of their advantages increases.

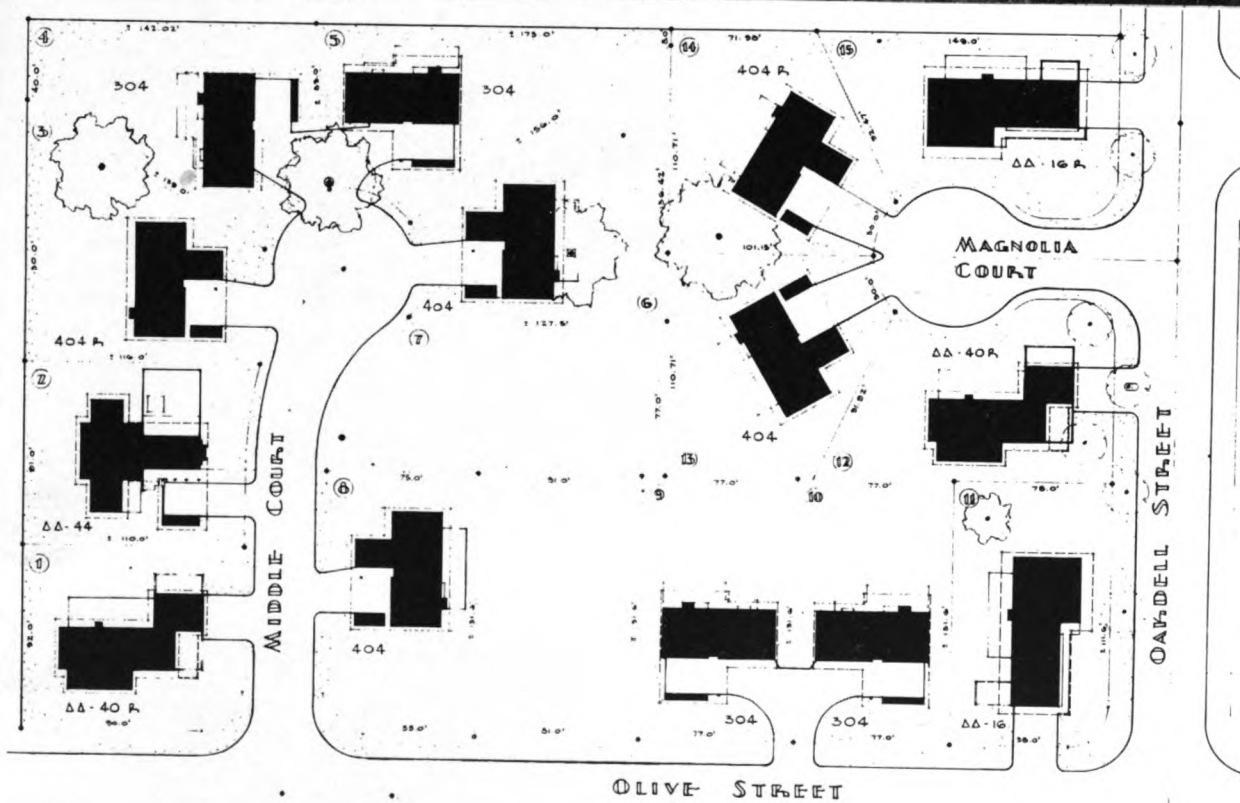
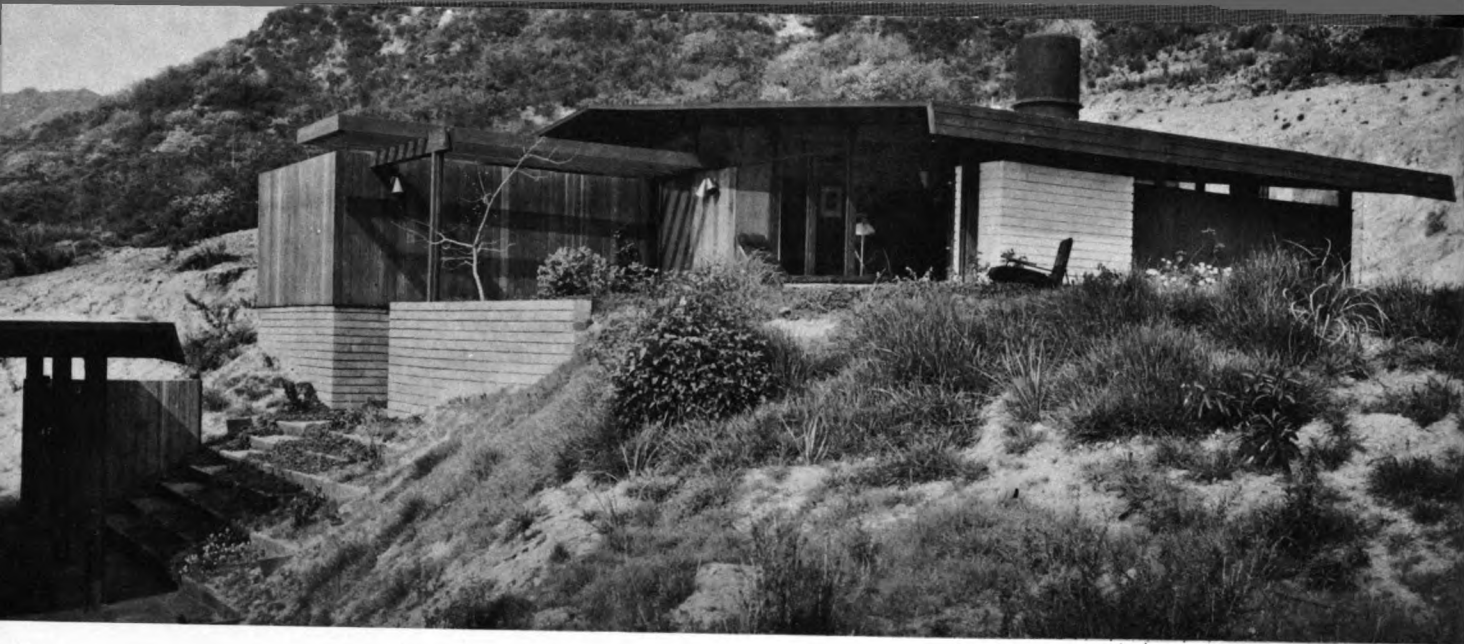
The prospective buyer would naturally rather purchase a house in example "B" than example "A". Not only can he live a better and more convenient life with a lower investment (since the builder can reduce his sales cost where profits are greater per house) but his resale value is almost certain to increase in a well-developed community. Furthermore, the builder who has established a reputation based on fully satisfied home buyers, is well ahead of his competitors when starting a new project.



It is demonstrably true that an adequate house in a well-designed and complete community is a better value than an excellent house in a poor community.

Many builders do not develop raw land, but buy into existing developments, where the lots, streets, and utilities are established, and the related community facilities have been predetermined. In this case, the builder can only use each lot as fully as possible and design a house that takes complete advantage of the individual characteristics of the property.

In buying into a predeveloped community, the builder should be influenced by the extent to which the amenities of a good community are available, since his sales and future business reputation can be effected. In turn, the land developer must be aware of the basic requirements of the total community, for his sales and reputation are likewise at stake.



THE SMALL BUILDER'S PART

A major objective of such organizations as the National Association of Home Builders might well be to coordinate a program leading to the development of complete communities. Obviously, the large builder and land developer can operate on a scale which allows complete environmental planning; it is just as obvious that the development of the total community is good business for any builder, regardless of size.

The small builder is not without answers to the problem:

- He can buy lots which are a segment of an existing total community.
- He can buy lots which are a segment of a proposed total community.
- He can join forces with a group of small builders and, as a team, they can develop the total community.
- A team of small builders can commission the best available talent in the fields of land and community development, to the advantage of each individual participating in such a venture.



The builder is becoming aware of the buyer's growing knowledge as to what constitutes a good house. As a result, many builders for the past several years have concentrated on the production of this better home for better family living.

Today, the challenge for the builder is to provide not only the good house itself, but also the facilities of the total community which buyers are beginning to demand.



Concentric Circle Site Plan

STREET AND LOT PATTERNS

The most dangerous use of any discussion on community and city planning would be one of "looking for solutions".

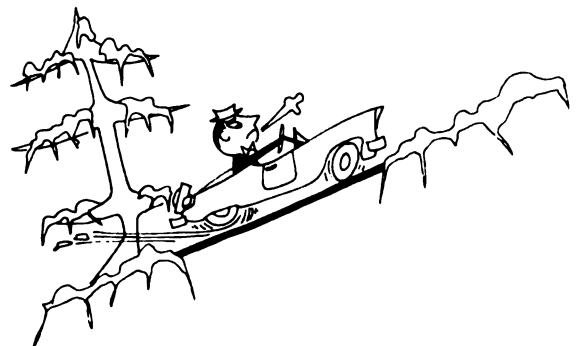
There is no universal answer for the layout of a good community, but there certainly can be realistic objectives. The design of a good street and lot pattern must include consideration of the following:

- Regional characteristics of land and terrain.
- Efficiency of street and lot pattern.
- Safety of street and lot pattern.
- Visual effects of street and lot pattern.

REGIONAL CHARACTERISTICS

Climatic conditions in each region will dictate certain design criteria. For example, in most parts of the country, a fifteen percent grade is considered a high gear road if the car has a rolling start.

In areas of cold climate and icy winter streets, grade conditions for road layouts may have to be modified. This factor is important in residential streets where slow traffic is desirable and a rolling start impractical. It is especially true in the case of driveways to lots which are either above or below the street level. The inability to get a car in or out of the driveway can be as irritating as "stopped plumbing".





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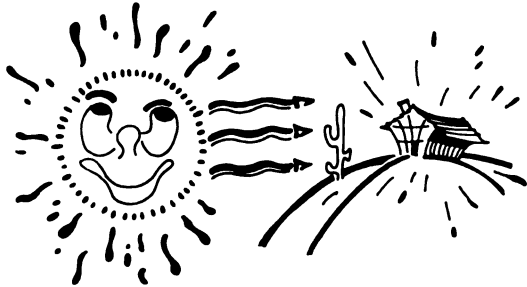


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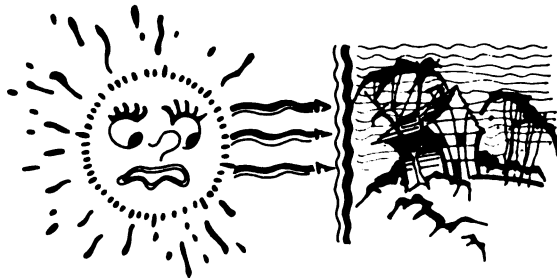


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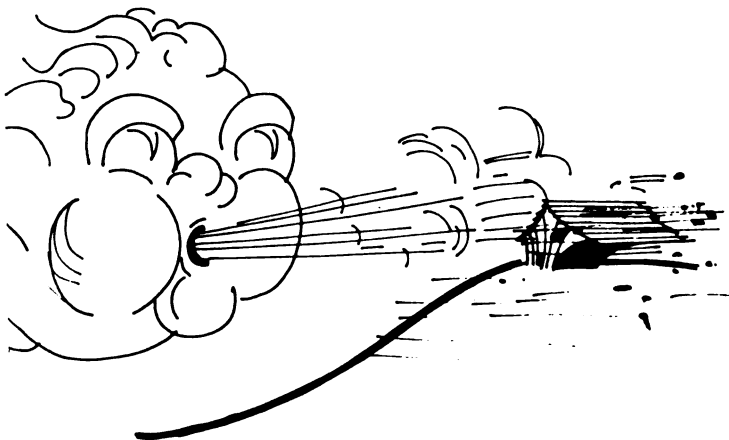
"Which came first, the chicken or the egg", is no more baffling than "the house or the community". The process of planning streets and lots must include consideration for the house designs, in their relation to orientation and weather.



In most parts of the country, west sun is undesirable. A narrow, deep lot on the west side of a north and south street makes it extremely difficult to relate outdoor living areas to the house.



If it is necessary for terrain, drainage, or other reasons to run the streets north and south, one solution might be wide, shallow lots.

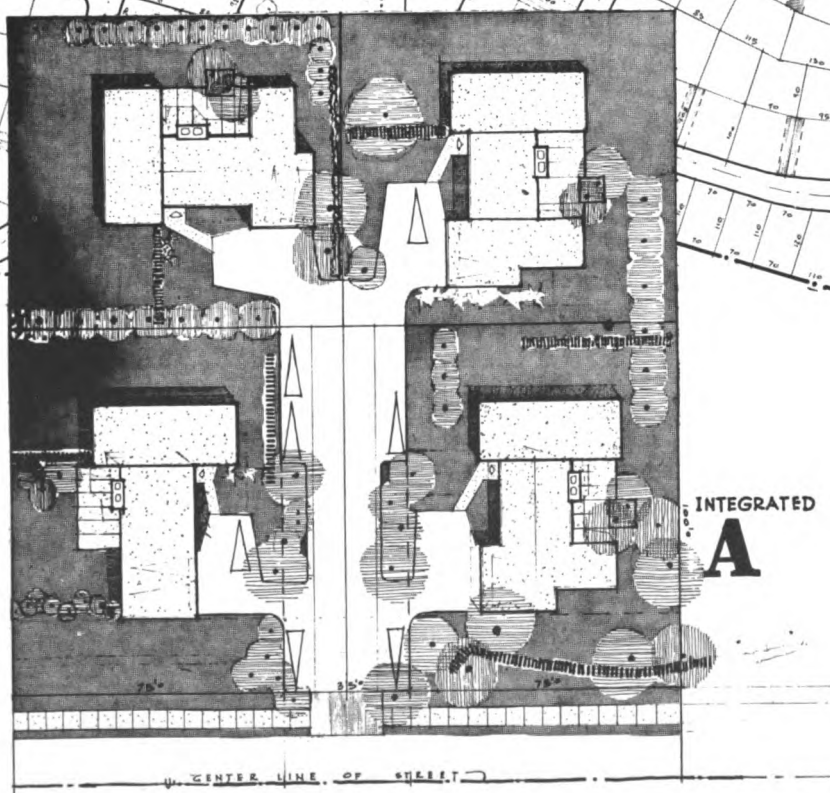
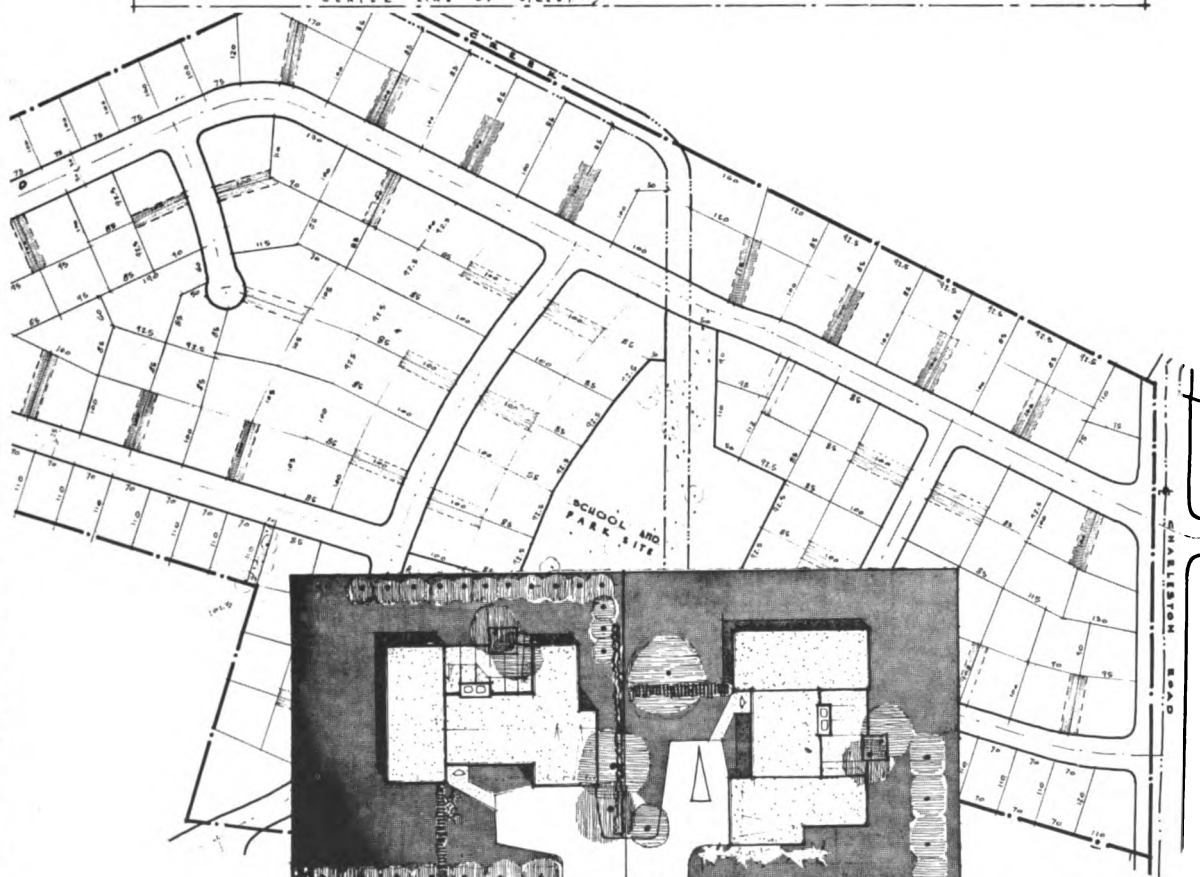
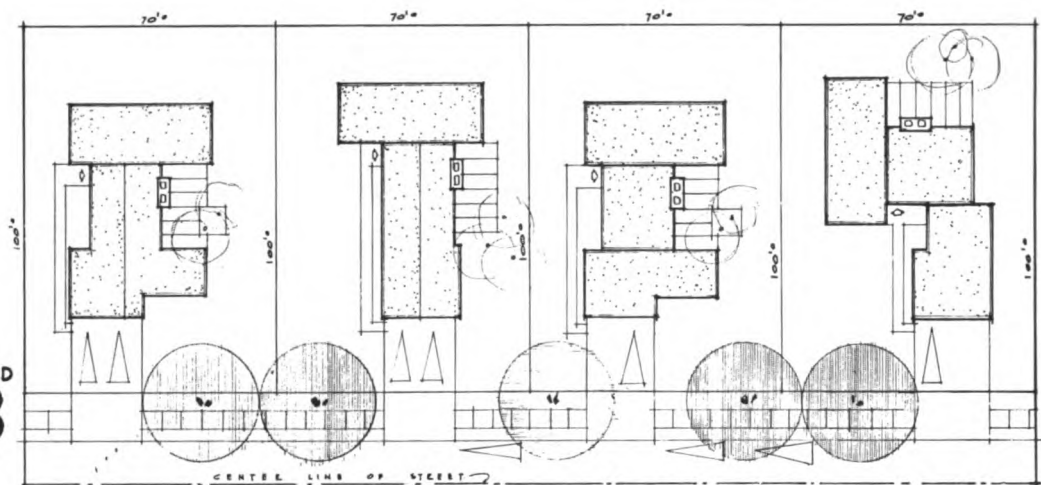


Each part of the country has a different direction of prevailing winds and breezes.

Protection from winds and collection of breezes must be considered in planning the shapes of lots.



STANDARD
B



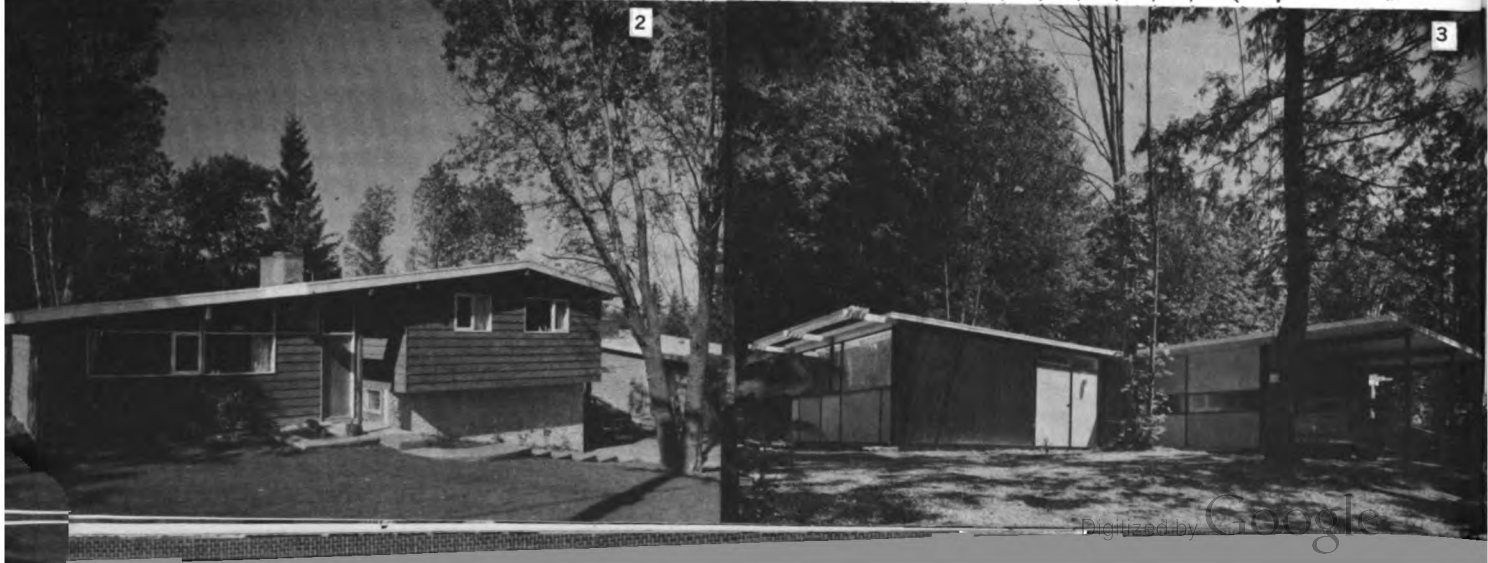
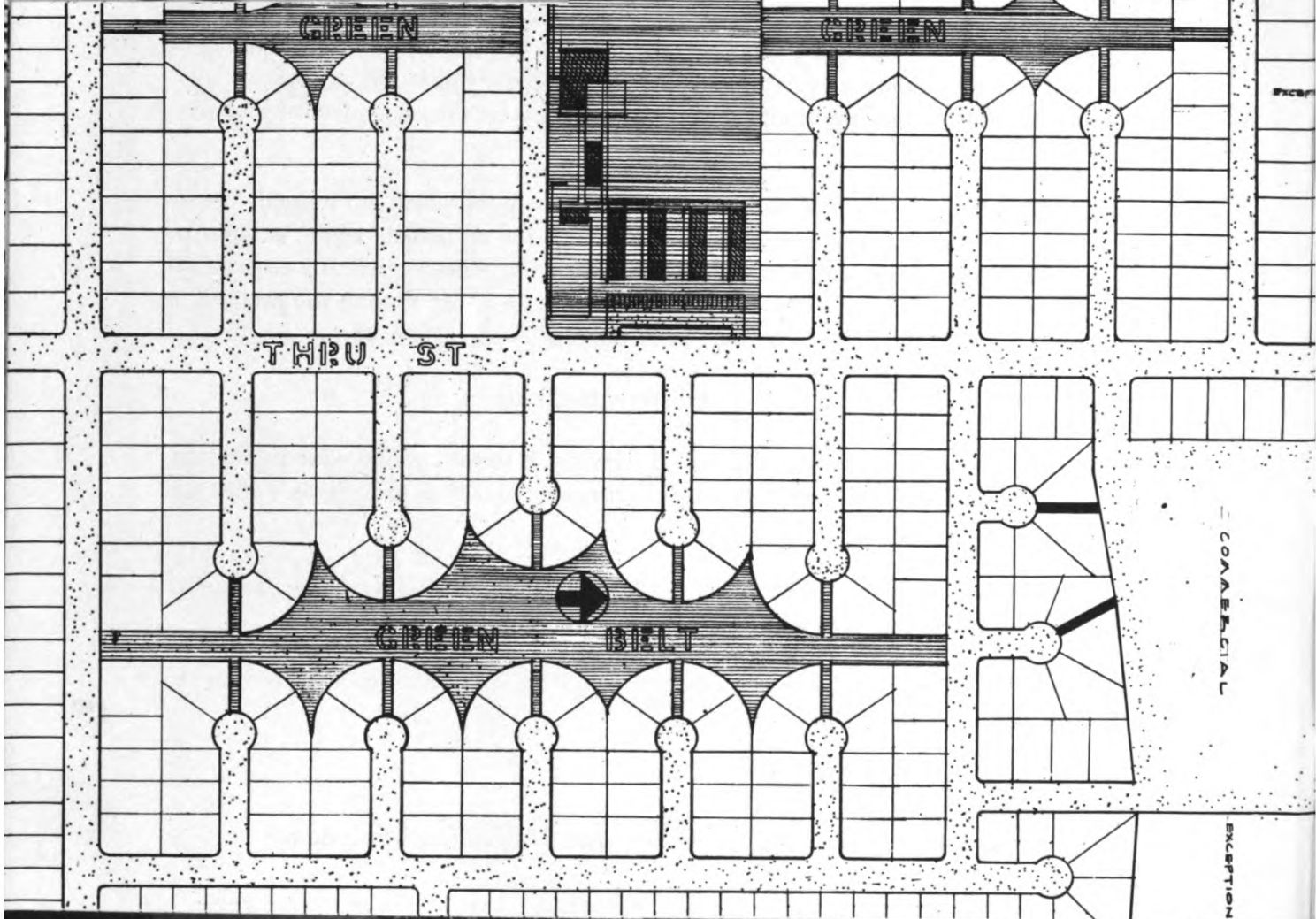
EFFICIENCY OF STREET AND LOT PATTERN

A good street and lot layout must take into consideration both land cost and development cost. If these are both low in a given area, the land planning is made much easier. If, on the contrary, these costs are both high, excellent solutions can be found to cut the lineal feet of street per lot and still maintain what appears to be a low density of family per acre of land.

Examples A and B on the opposite page are actual layouts for the same piece of property.

The comparative figures show that example A requires less public road but more driveway per lot. Since the cost per square foot of driveway, for this particular region, is approximately one-fifth the cost per square foot of public road, the scheme is obviously economical in this respect. More important is the fact that by looking for a way to solve the problem, a superior neighborhood has been achieved, as evidenced by the following:

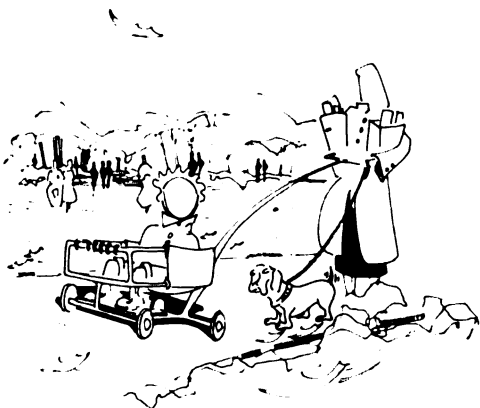
- No garage doors (or carports) face directly to the street.
- Guest parking is on private cul-de-sac driveways. If street parking were prohibited, the streets could be twenty-five percent narrower, and thus provide an additional saving in development costs.
- Each house in effect, would face a cul-de-sac road, eliminating the danger to pedestrians or children at play which is usual with the through street.
- Visually, the houses appear to have a greater separation than when placed on the conventional row-type lot.
- Buyers prefer a house located on a cul-de-sac.
- The finished lot shapes permit easier and more imaginative house design.



SAFETY OF STREET AND LOT PATTERN

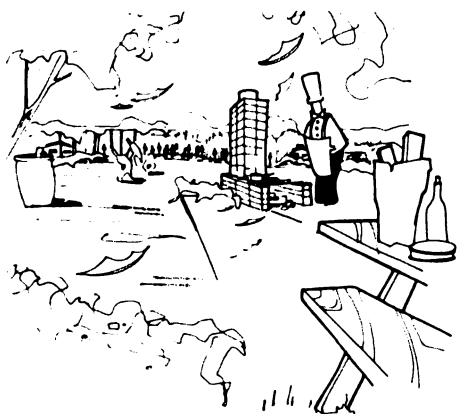
High speed traffic and through streets should be kept out of residential areas whenever possible. The example shown is a scheme developed on a difficult and irregularly shaped piece of property. Most of the lots face a cul-de-sac road. Although the perimeter lots face through streets, these roads are tributary only to the main throughfares which are non-residential.

Children are able to walk to and from school and play areas without crossing heavily traveled public streets. The pattern also permits the home owners to walk through a park area to the shopping center.



The housewife can even manage a baby stroller or carry an armful of groceries without additional concern for traffic.

The school is available for neighborhood group activities. The integrated community facilities tend to insure inter-family understanding at all age levels.

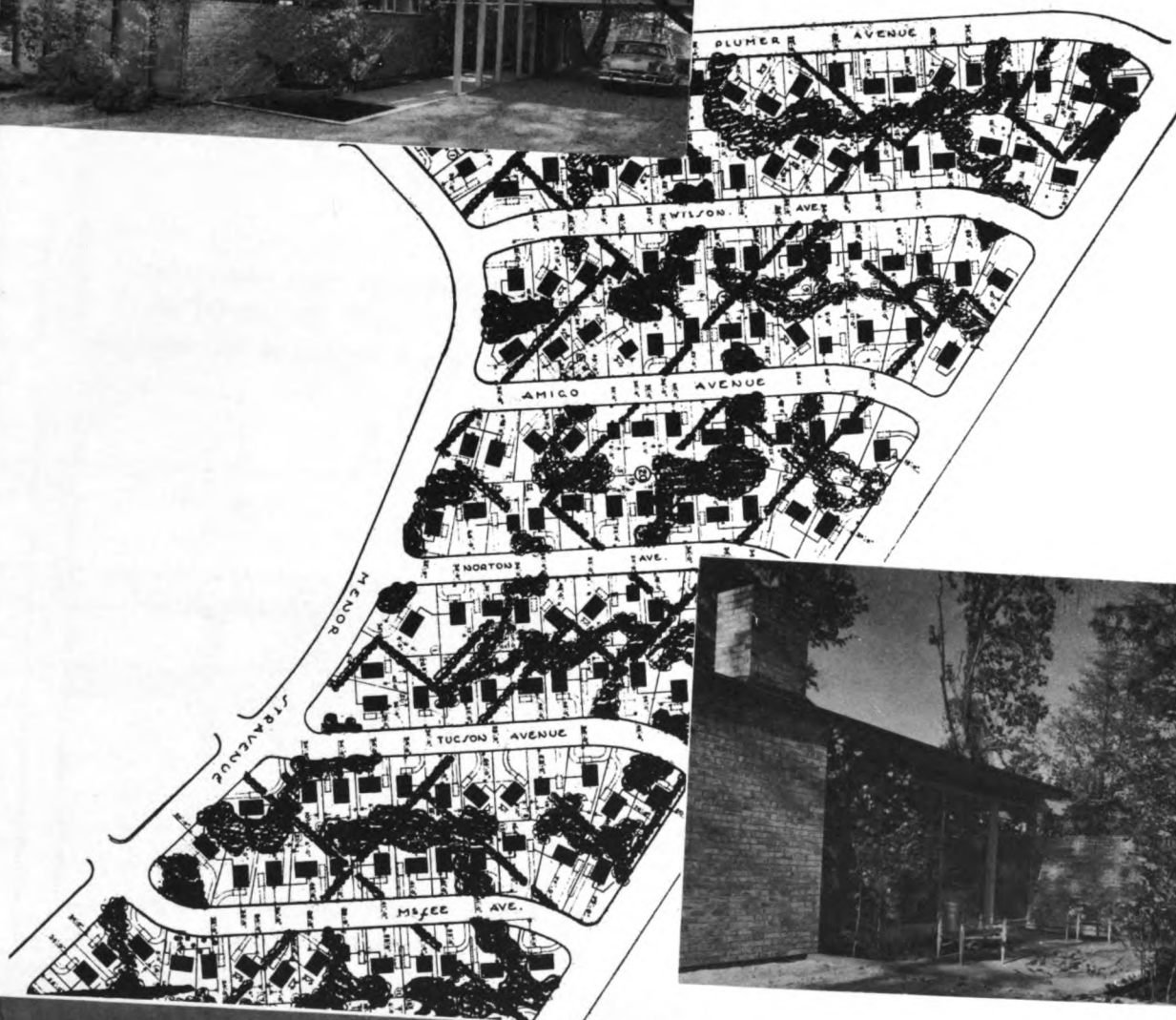


The greenbelt areas can be utilized for family recreational functions and neighborhood picnic facilities.

On what is truly a small area, the basic family requirements for pleasant living are provided. As a development grows larger, it becomes easier to provide additional facilities for the total community.



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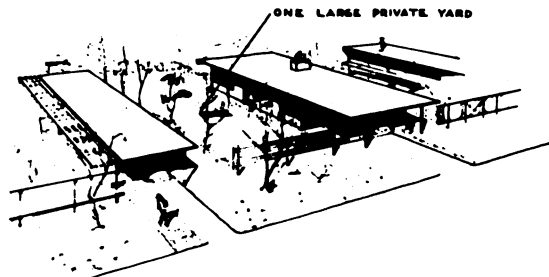
VISUAL EFFECTS OF STREET AND LOT PATTERN

When the land to be developed has a distinct character of its own, such as natural growth or elevation variations, monotony is achieved only by deliberate effort (as it too often is).

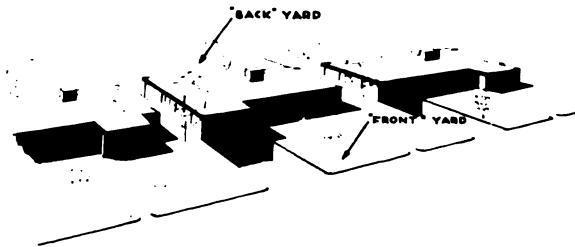
However, many developments are on level and relatively barren land. This is a challenge to both the merchant builder and architect. When this occurs, the land planner, designer, and architect must be ingenious if they are to create an esthetically pleasant neighborhood devoid of monotony.

ON NARROW LOTS

TRY THIS

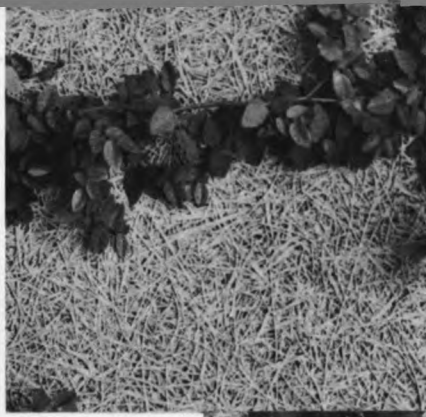


INSTEAD OF THIS



If crowding of houses can be avoided, a big step will have been taken. The example on page 34 is one possible solution. The scheme shown on the left, by architects Bassetti and Morse, is another.

The forethought of providing a good community tree planting plan has proved to be one of the most effective methods for improvement of both the street and individual lot pattern.

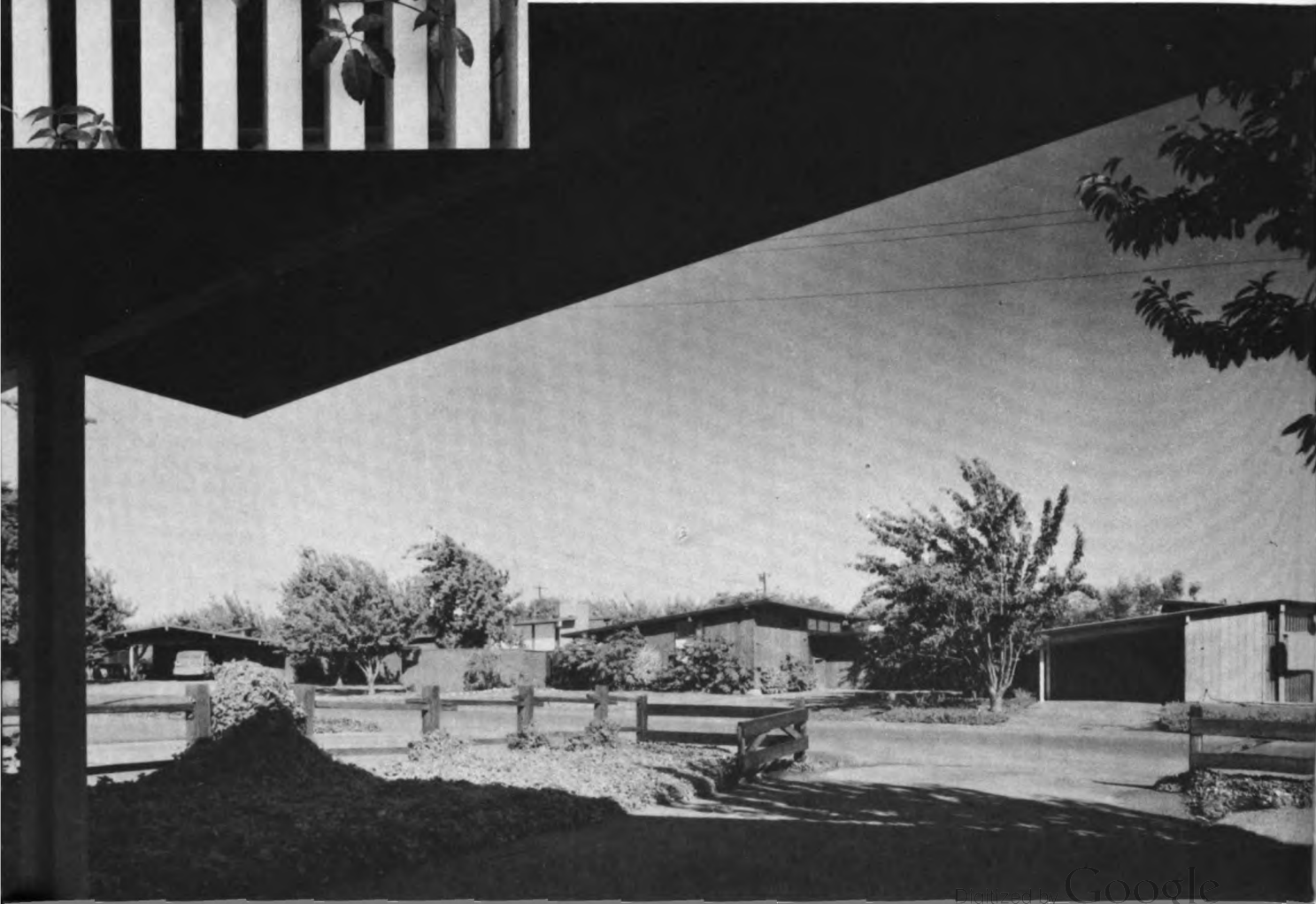


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COMMUNITY LANDSCAPING

Esthetically, nature has taken care of her communities. The merchant builder has a similar responsibility. Beyond his moral obligation to provide a pleasant place to live, it can easily be shown that there are returns to the builder, as well as functions to be achieved, by carefully studying the over-all landscape problem of the community in advance.

The well-conceived community landscape plan should, and can, achieve certain objectives:

- Visual environment is an important psychological factor in everyone's life.
- Planted privacy screens can be more beautiful than man-built fences and walls.
- Trees and shrubbery not only control wind but act as collectors for blowing debris and dust.
- Sun and light control are important if a space is to be livable.
- As in nature, a continuity of major tree planting can create a unified appearance by relating houses to each other as well as to the surrounding terrain.



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Google

Developers customarily set aside a portion of their budget for landscaping. In some cases, the local planning commission or lending agency insists on this and will set the minimum requirements. It is very important to analyze the best way to spend this money. Therefore, it is mandatory to have a master plan to insure that the major tree planting is taken care of first. After all, the individual owner not only expects but desires to determine the type of ground cover and flower planting on his own lot. If the major tree planting is established, it will do the job of creating unity and permit more flexibility in expressing personal preference on individual sites.

In almost every situation, nature has endowed us with a pleasant and livable visual environment. It is ridiculous to argue that one should not respect and maintain all the possible natural beauty which any given site affords. Man cannot match nature, but he can attempt to complement nature; if he does he will, in turn, be complemented by nature. The removal of existing trees, and the changing of natural grades, should be limited to the minimum required to properly prepare the land for site improvements and the construction of houses. Existence of trees on raw land is a distinct asset. Their sales value far exceeds the savings made in construction costs by completely removing the trees for ease of building.

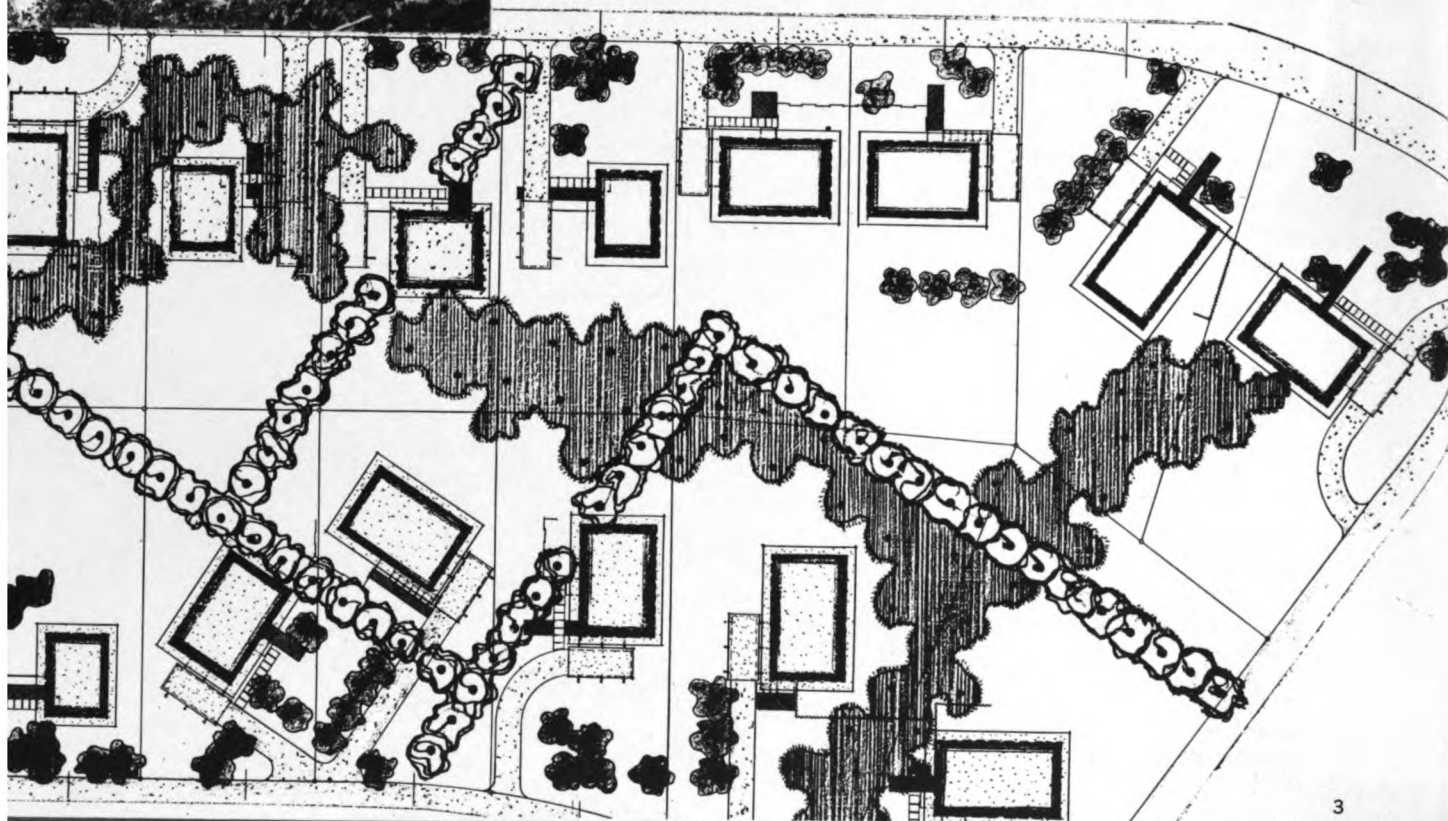


When grading is necessary, it should be studied as carefully as if it were a piece of sculpture.

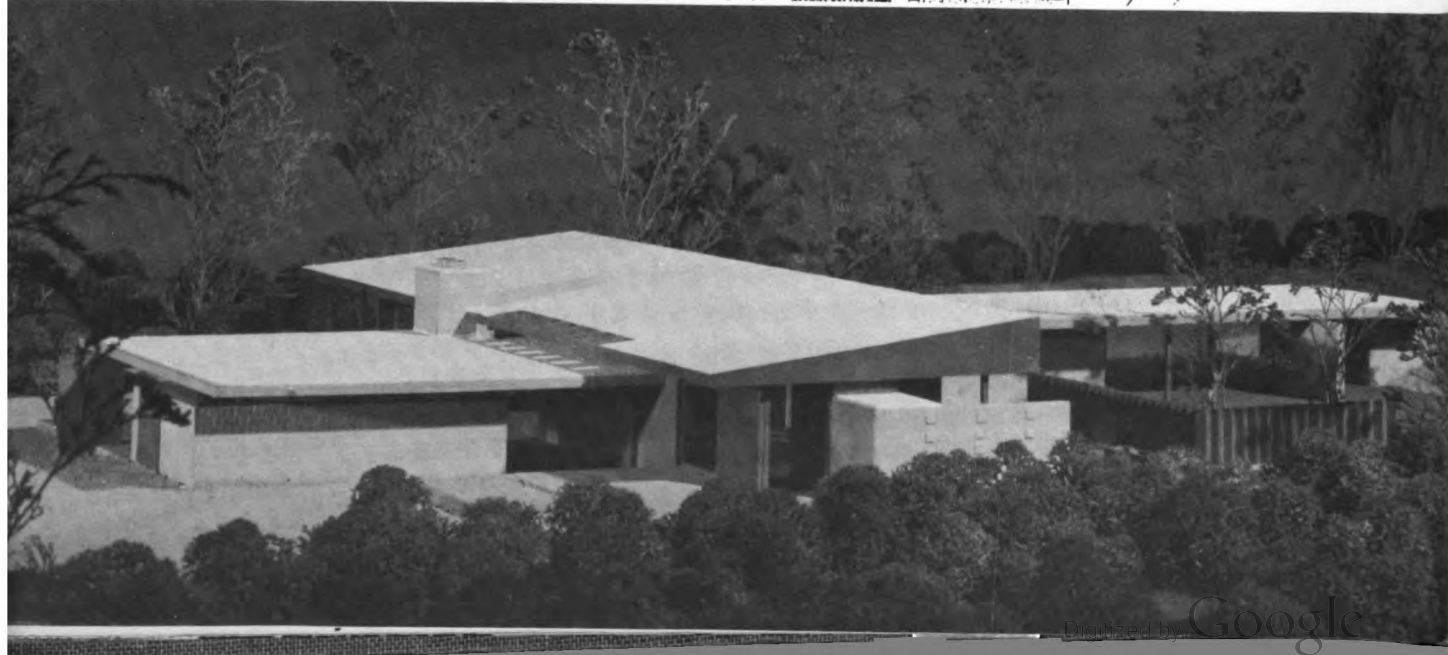


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LANDSCAPING IS A FUNCTION

Besides creating beauty and a good visual environment, how can you make a landscape scheme work for you? The site plan on the opposite page illustrates one way in which tree planting can help to control wind and sun, as well as define space in a pleasant relationship to the living unit.



First, one can classify plant material in three major groupings according to their use:

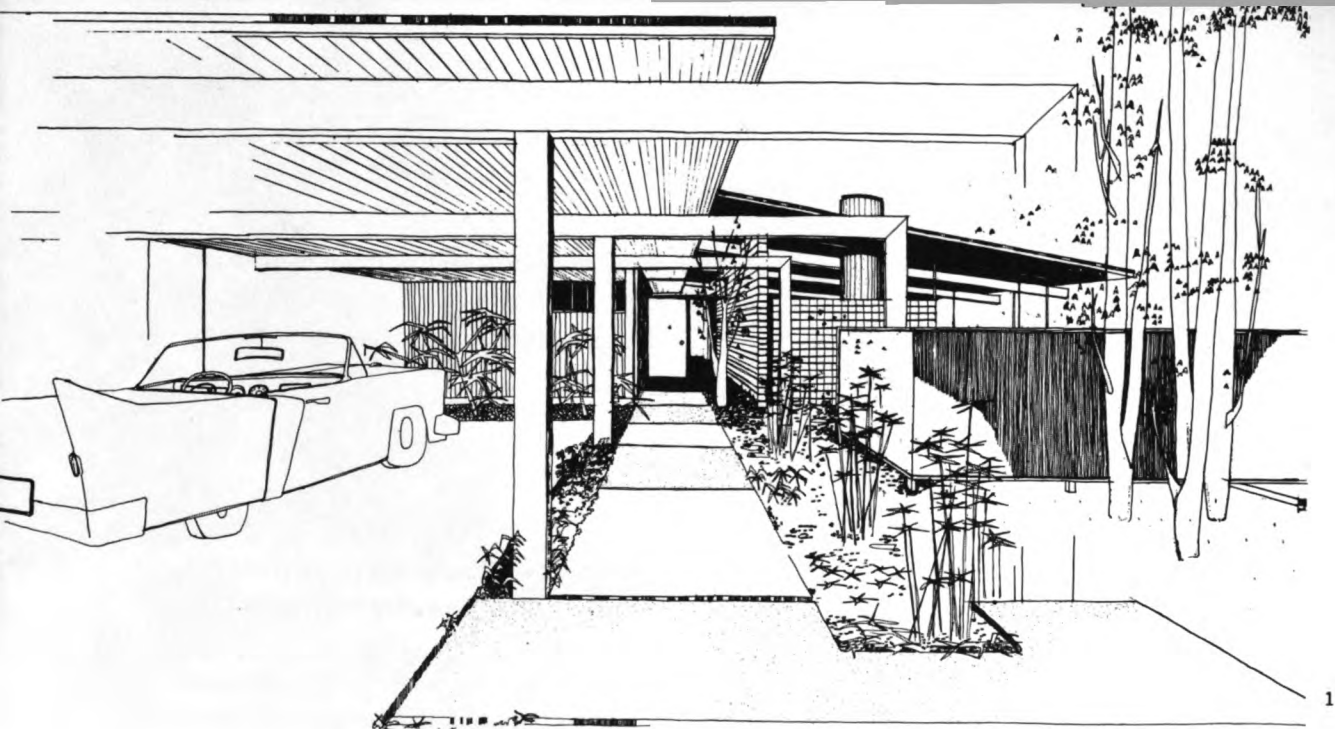
TALL TREES for wind baffles; such as cypress, poplars, eucalyptus, elms, etc.

MEDIUM HEIGHT TREES for shade and intimate areas; such as olives, walnuts, peppers, maples, etc.

LOW SHRUBBERY for visual screens and control of windblown debris; such as the pittosporum family, boxwood, privet, oleander, etc.

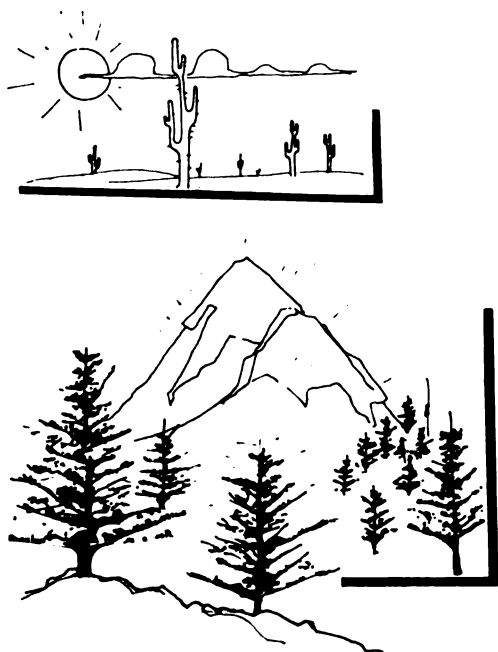
In the plan on the opposite page, the straight geometric lines of the trees are placed, in this particular case, to control northwest storm winds and furnish patterns of shade from the summer west sun. The tall tree pattern is rigid, but the random planting of medium height trees is a pleasant contrast and affords intimate shade areas. The low shrubbery can then be planted as screens to provide privacy between lots, as well as to define outdoor spaces within the property lines of any given homesite.

This is only one example of the many possible solutions to the problem. One can visualize the pleasant effect of driving through lines of tall trees, as well as groups of medium height trees, then opening up into clear spaces only to again find oneself penetrating the tree grouping. This can be compared to counterpoint in music; at least the depth of feeling is quite similar. Surely this is a more exciting experience than the monotony often produced by lines of parallel street trees which rarely function to the maximum degree possible.



Considerations

An entire book could be devoted to the subject of community landscaping, but there are governing considerations that apply to any direction taken in design.



It is most important to know and use plant material that is indigenous to the region. If this is carefully considered, maintenance will be held to a minimum. Nature will be the gardener. Ease of maintenance insures a more uniform appearance, particularly in a community where home owners have varying degrees of spare time and gardening ability.

The proportioning of trees per lot is important. Owners are human, and if they buy into a community with a master tree planting plan, they feel they deserve approximately the same number of trees on their lot as their neighbors. On the site plan shown, there are an equal number of trees on each lot, even though some lots may contain mostly tall or medium height trees.

It is much more important to plant ample, or more than ample, numbers of trees than to overdo the small plant material. Even with a limited budget it is easy, in almost any region, to find young native trees that grow rapidly. Though the tree sizes may initially be small, a few years growth will provide the desired effect.

The community builder has a great opportunity in the proper use of landscaping. The designer of the individually built custom home, in contrast, can do little to affect or control the over-all appearance of the community. This is just one more area where the merchant builder can, with the proper approach, create a better place to live.

After all, acorns grow into mighty oaks and mighty oaks provide beauty, serve a useful function—and, sell houses.



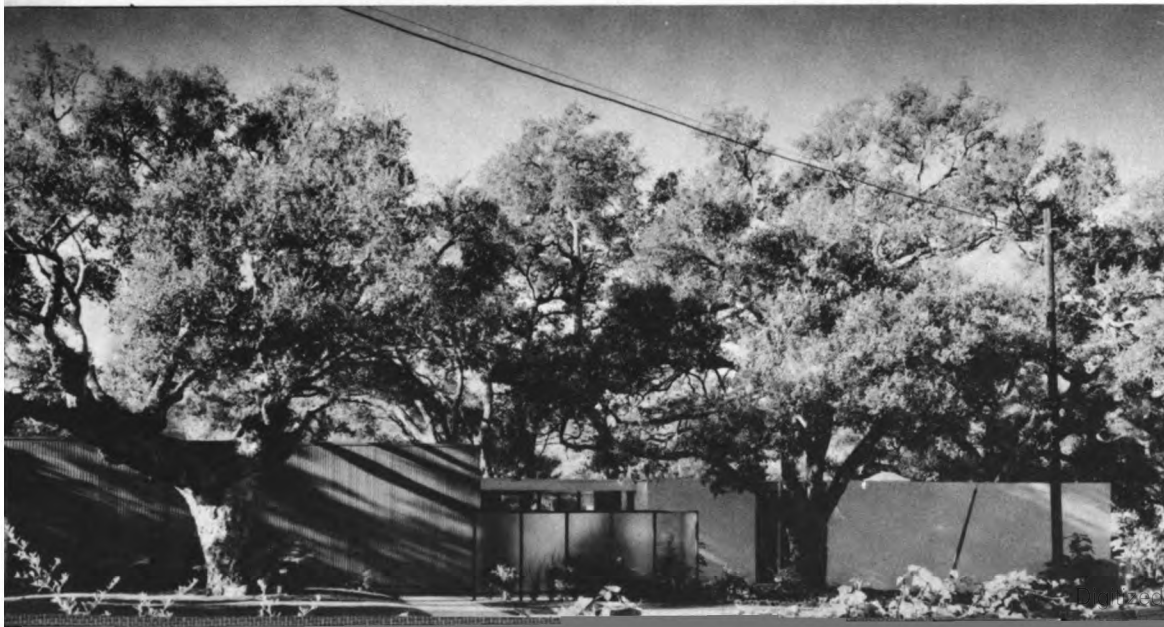
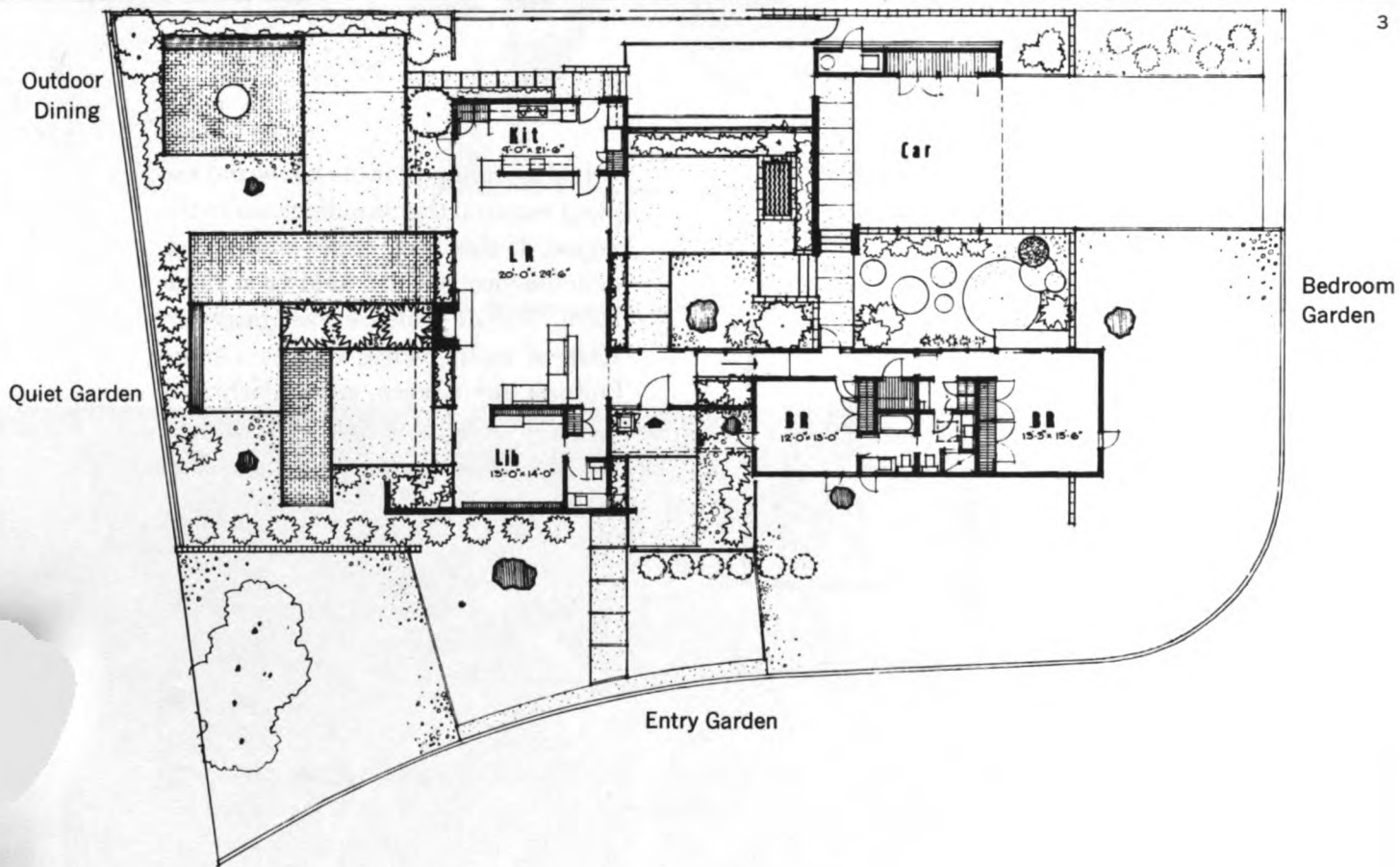
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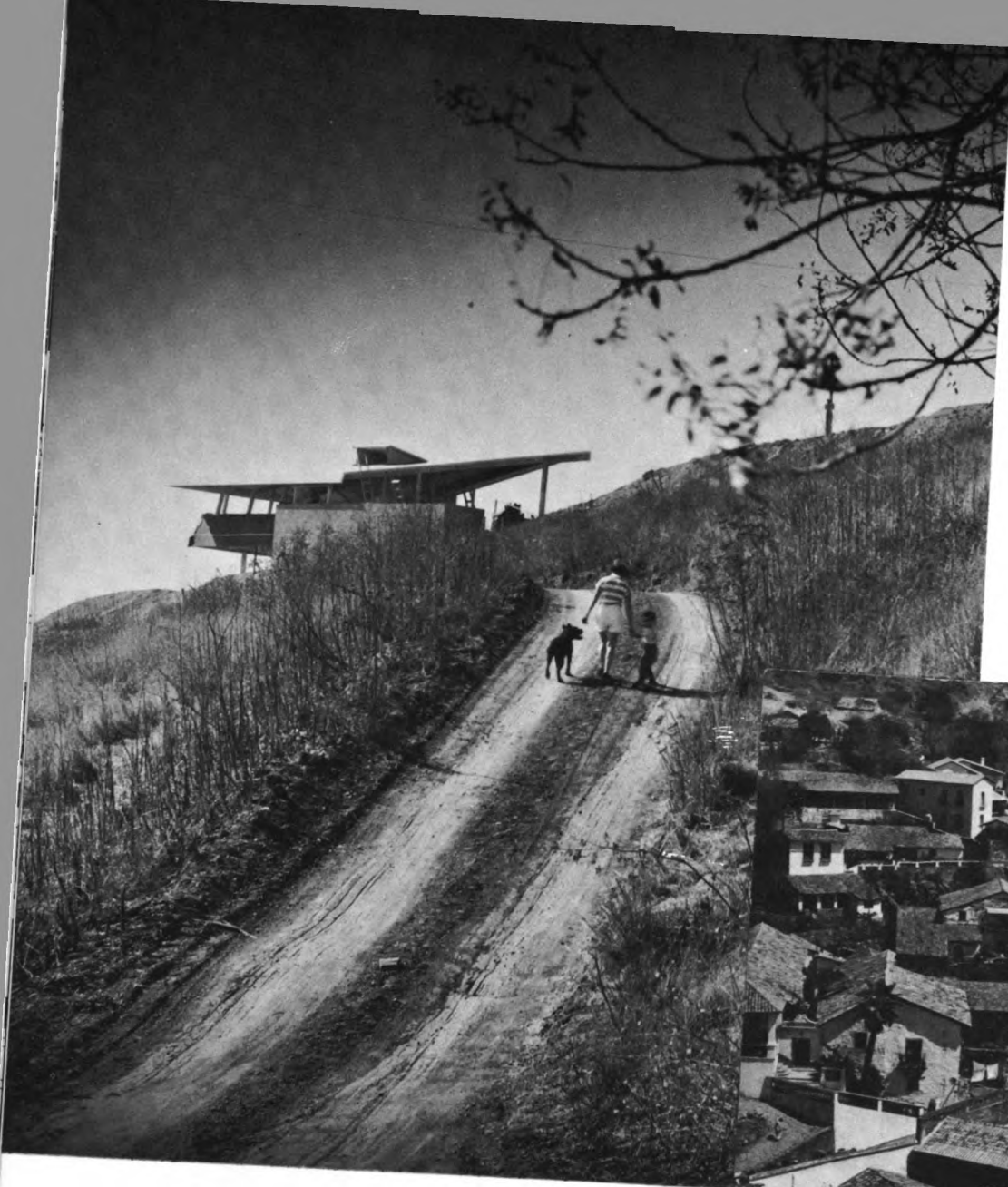


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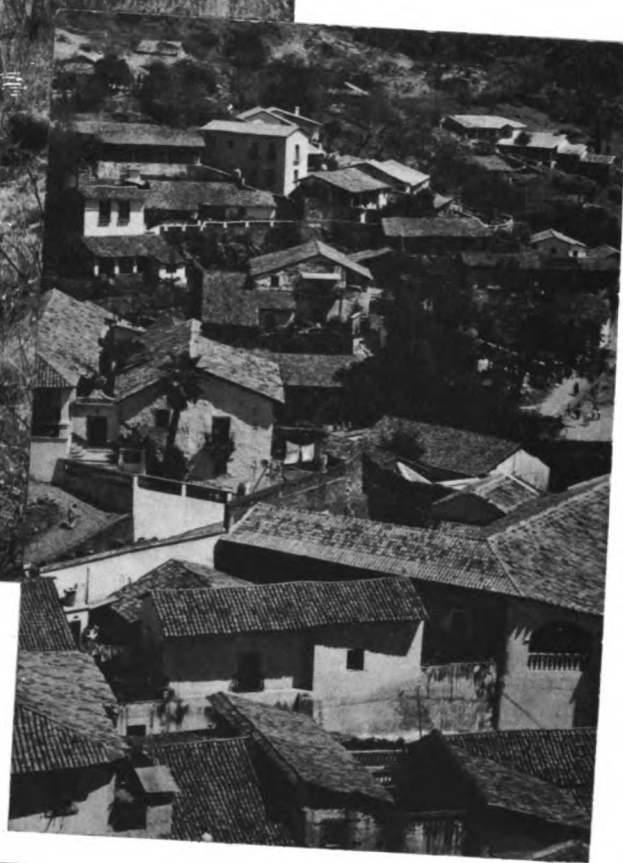
Chapter III

THE INDIVIDUAL LOT

**For the maximum family life, the total use
of the individual lot is a necessity.**



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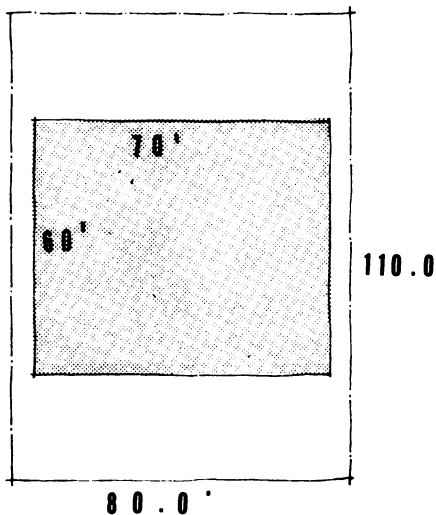


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Japan, 1800
Privacy Fence

THE RELATION OF HOUSE TO SITE

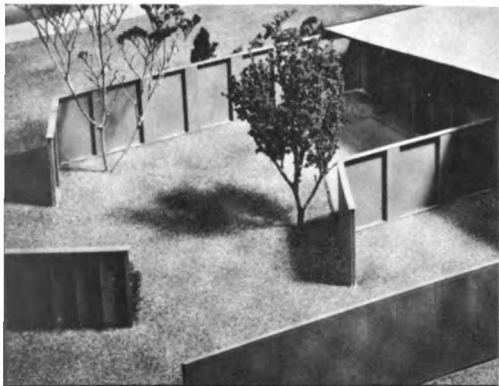
Outdated building codes often impose restrictions which limit and force compromises in the structure when designing and building a house. This is equally true when placing the house on the lot and planning the best possible total use of the building site. Design considerations for good house and land use, as influenced by the restrictions of today's zoning laws, become a problem in the search for solutions to the maximum use of property.



The high cost of land has resulted in the acceptance, by necessity, of small lots, even in luxury housing. Arbitrary zoning restrictions, which average 25 feet for front and rear yards, and begin at 5 feet for side yards, reduce the buildable portion of a normal city lot to approximately 50 percent of the total land area. When you consider that each lot age also uses 50 percent of the street along the frontage as additional land, it is evident that this is not good land use either.

It is generally agreed that many European, and Latin-American residential districts give an impression of charm and beauty often lacking in American towns, yet they fail completely to comply with the principles of most zoning laws. Their designers never defined "front", "rear", or "side" yards. One cannot say that they were unknowing; they did what seemed logical. The results were almost always esthetically delightful.

If we assume that all the side and rear yards can be designed for use, we are still required to set aside about 20 to 25 percent of the average lot for the next-to-unusable front yard. Although front and side yards have been forfeited to non-livable areas for the family, zoning laws unfortunately continue to receive the nod of acquiescence, if not positive approval.



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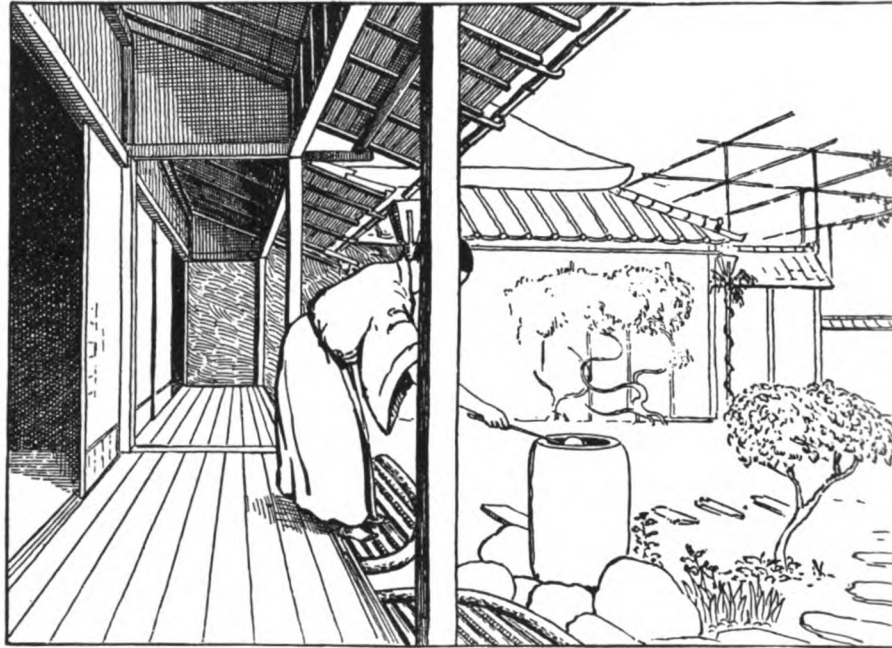
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Japan, 1800 Outdoor Living

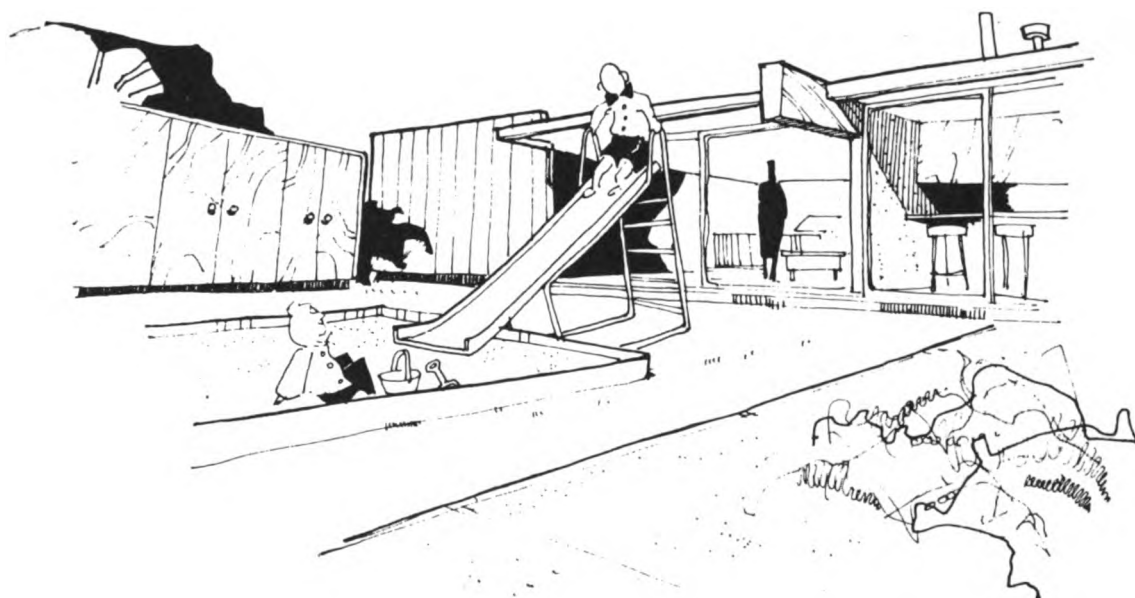
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What to do about this problem is a challenging question that we need to consider in order to design for the best use of the land. The basic solution, of course, is to work toward a change in the zoning laws. This means working over a long period of time with individual planning commissions, lending agencies, the Federal Housing Administration, the Veteran's Administration, and other groups. This should and will be done, but what do we do today?

For today's projects, we must of course, plan within the present laws, but, by planting and fencing, we can include the side and rear yards as usable outdoor areas, even if the space cannot be used for the house itself.

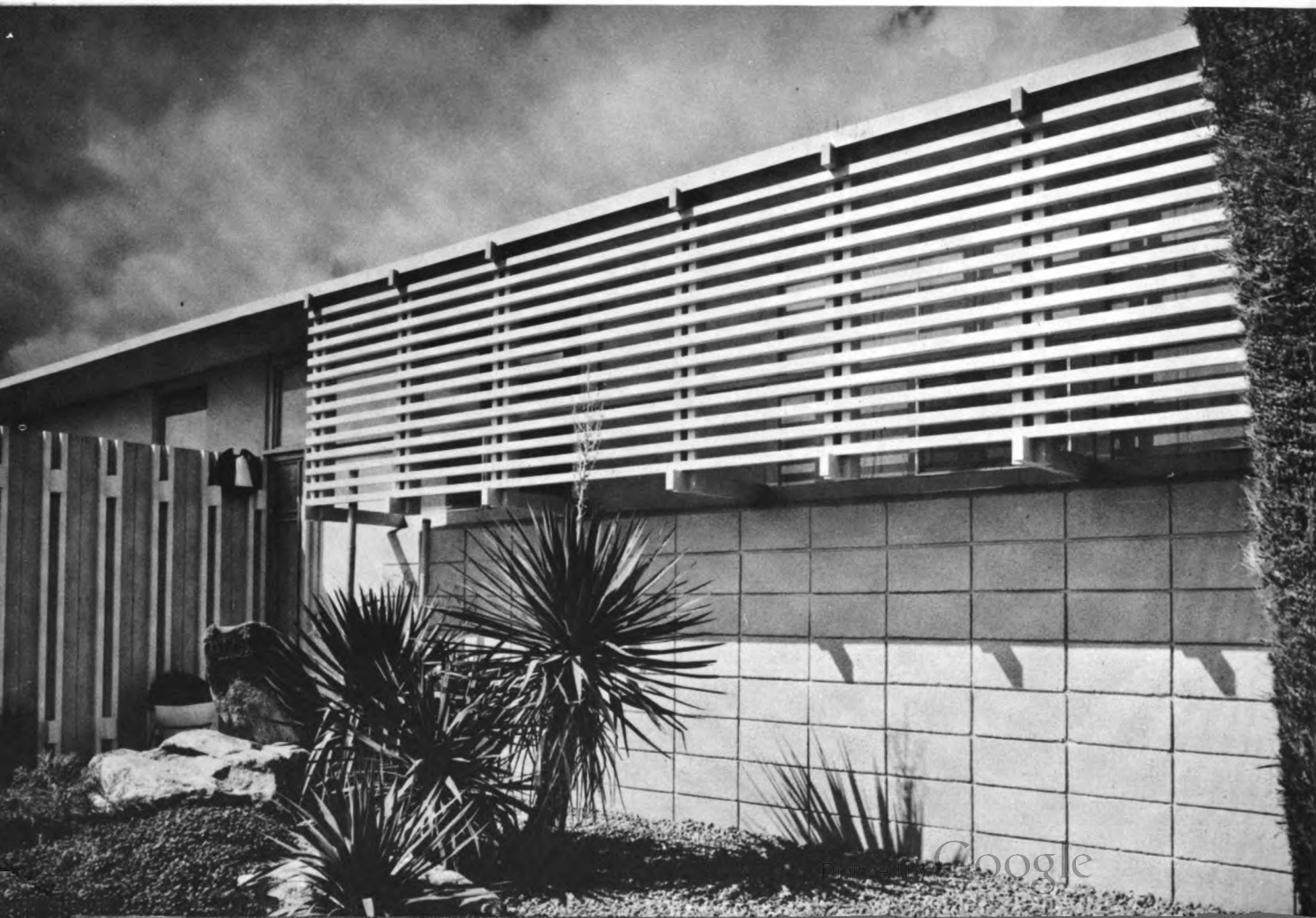


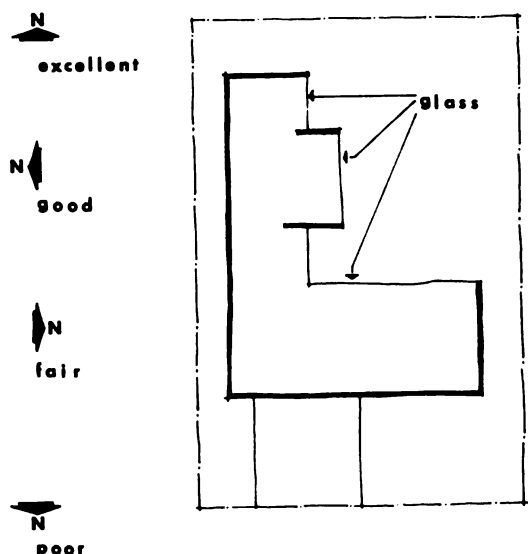
In most communities the law allows fences up to six feet high in setback areas, excluding the front yard. Fortunately most restrictions allow other structures up to six feet in height to be built in side or rear yards. These low structures can house facilities such as gardening and home shop equipment. Further, the law does not restrict the erection of children's play equipment such as swings, slides, sand boxes, badminton courts, jungle gyms, and other paraphernalia. Paved areas are also permissible for play and outdoor living.

By taking advantage of these allowances, the architect may expand living areas to include the entire side and rear yards if he desires.



1
Roof Overhang Relates to Orientation





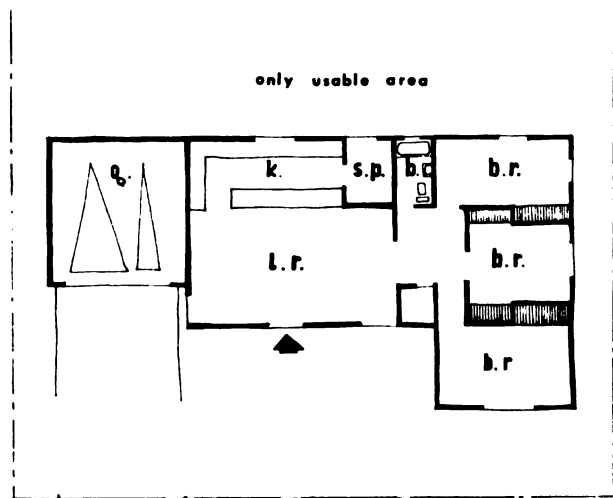
Let us explore the basic problem of placing the house on the lot.

The point of orientation should first be considered. This site plan assumes north in four possible relations to the given house plan.

With north to the top of the page, glass areas are oriented to the east, the best possible way for almost every part of the country. The other orientations are graded in relation to their desirability. The west sun shining into the major glass areas is almost universally unacceptable.

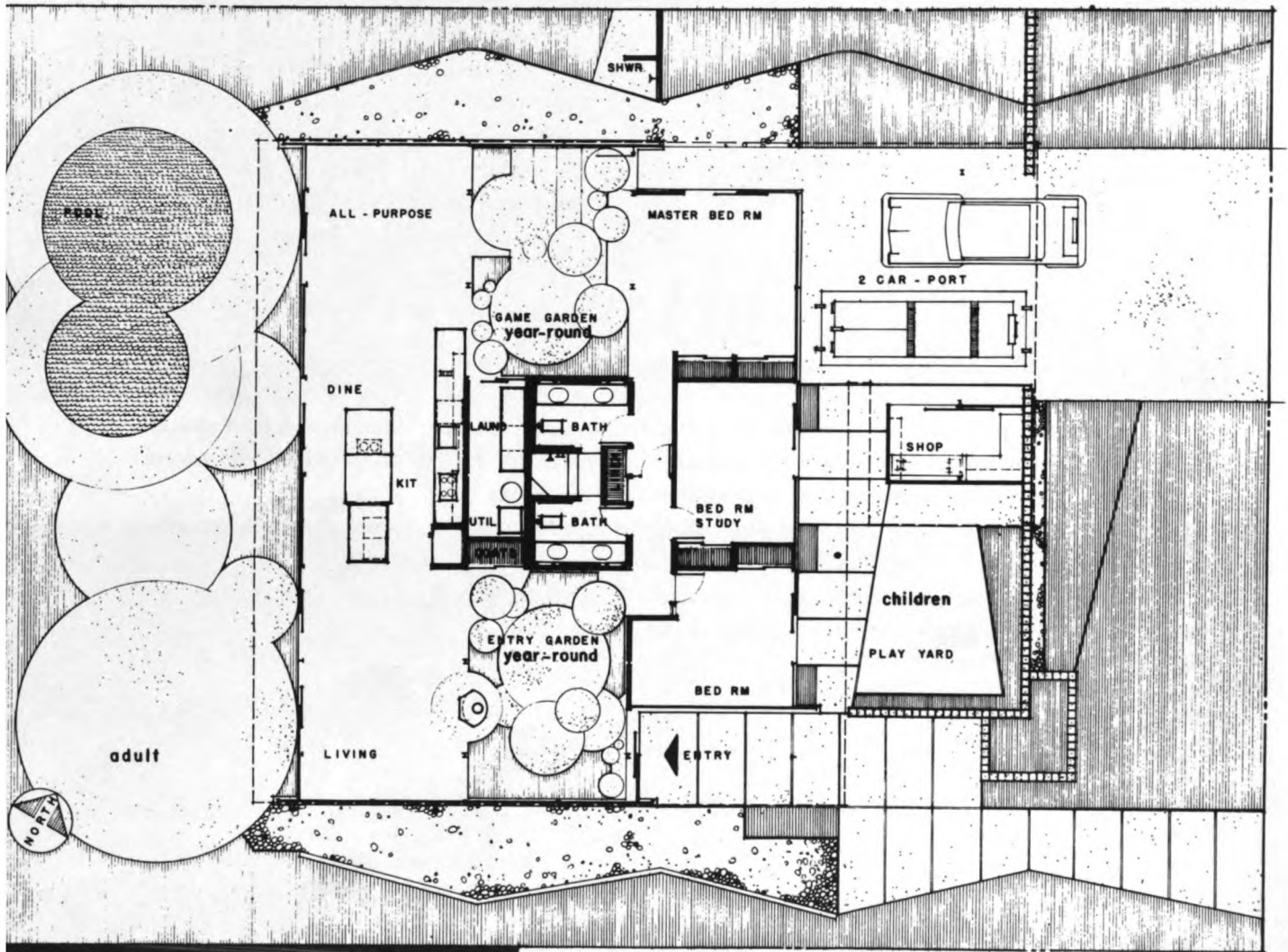
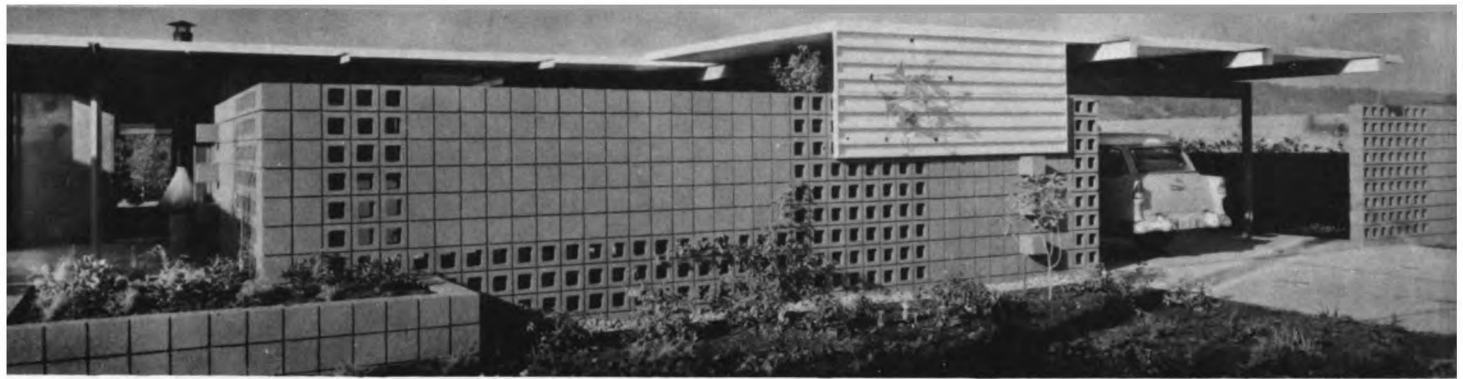
The trick of planning, so to speak, is to relate individual rooms to specific outdoor spaces planned for the visual extension of the rooms, as well as for expansion of usefulness where possible, but never forgetting the importance of orientation.

The importance of planning for the total use of property becomes evident when one considers the disadvantages of floor plans which ignore outdoor areas. If the usable outdoor areas are accessible only through the service porch or by other such devious means, the yard cannot be experienced as an integral part of the house.



As far as environment is concerned, the rooms might as well be located in a city apartment, because no visual relation to the outdoors exists.

Today's zoning requirements do not insure privacy, added living space, or beautiful communities. As a matter of fact, setbacks force the designer to become "ingenious" in order to make good use of the land, and it is impossible to make the best use of the land.



2



No Regional Limitation on
Year-round Interior Garden Living

3

GARDENS AND LANDSCAPING

The landscape plan for the individual lot must be considered from the functional approach just as one does in planning the individual house. There are as many different uses of yard spaces as there are areas of use within the walls of the house. Each outdoor area relates to one or more interior areas. Since a detailed discussion of garden plant material is beyond the scope of this book, it will only be possible to cover the theory of use and relationship of spaces.



Outdoor living areas must relate to, and be similar in function to certain interior spaces. As a matter of fact, if properly planned the two should almost seem as one space.

The surfacing should not only be adequate for the required equipment and furniture, but be easily cleaned by a broom or hose.

Shrubbery or fences, properly planned, will insure all required privacy.

Intelligent outdoor lighting will eliminate the mirror effect of glass at night, allowing the garden area at all times to be a visual extension of its related interior space.



The planting of garden areas must be related to the interests, time, ability, and pocket-book of the individual. This is one of the many reasons why, in the preceding chapter, it was stressed that the concentration in design should be on the major tree planting for the whole community rather than small scale planting within the individual property lines. One family might enjoy colorful, exotic plants which require time and exacting gardening knowledge; another family might prefer a more maintenance-free garden and use perennials which provide year-round beauty with a minimum of care.

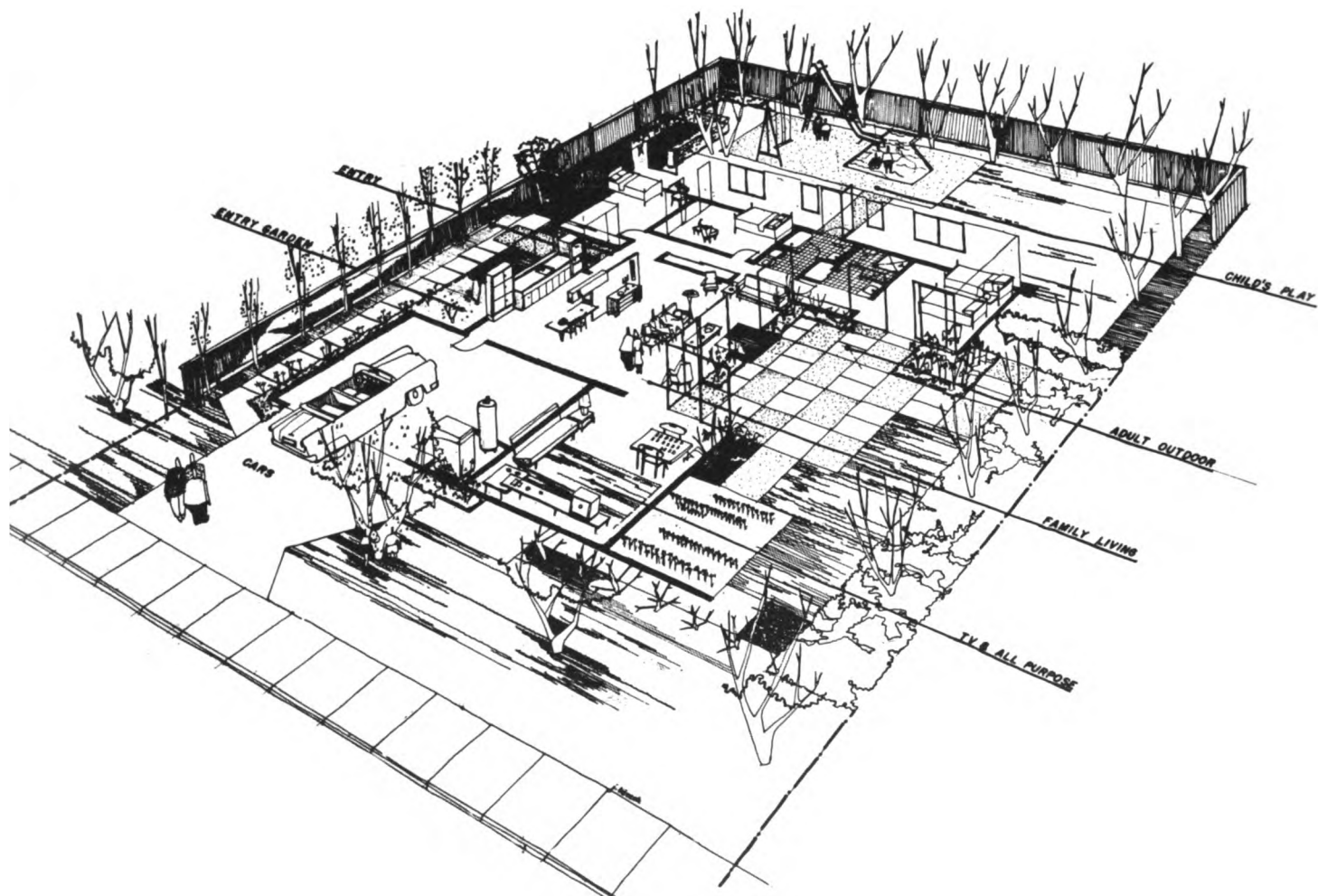


There are, in spite of public opinion, two to four months of good weather for outdoor dining in almost every part of the country.

The season of usefulness may vary. On the West Coast it is limited mostly to the summer months. In the East, it may be spring and fall for mid-day dining and summer for evening meals. In some parts of the country it may be necessary to screen the outdoor eating facility or provide shade.

Garden dining must relate to the indoor food preparation area, even though secondary food preparation facilities may be a part of this area. Plant material may include seasonal vegetables which are often beautiful in their own right.

The plant material around children's play areas should be of a hearty and sturdy nature. Here, surfacing materials must be studied to relate to the anticipated use. One should never forget that surfaced areas can be beautiful and are the easiest part of the garden to maintain. Color of paving and plant material may be used as a device to eliminate glare in the house. Proper use of color, texture, and plant material effectively create cool areas if this is desired.



Total Lot Use

OUTDOOR LIVING AREAS

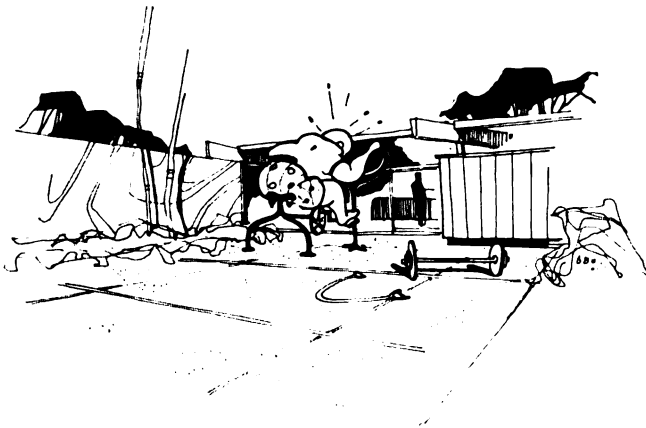
Although this is a discussion of good design criteria, it is not an attempt to suggest that all planning elements described are imperative, or necessarily desirable, for all home design problems. The intent is to express a few thoughts that may evoke freer thinking and lead to creative answers to the problems of space, maximum livability and privacy.



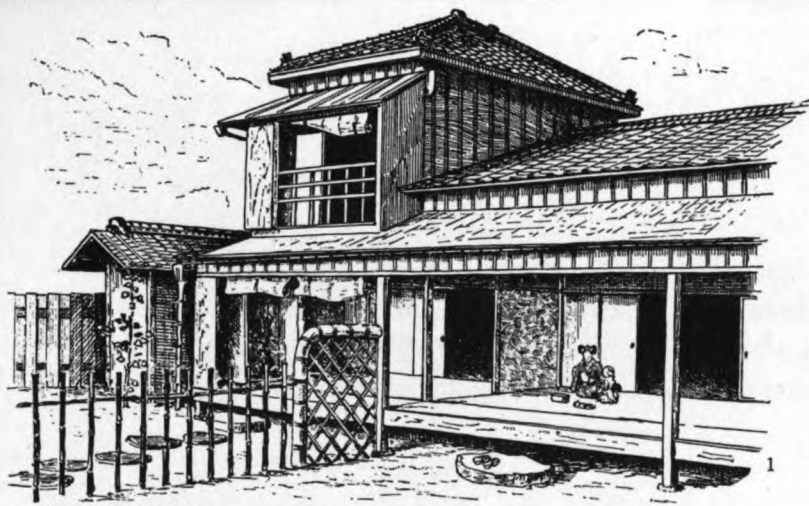
The children's bedroom, for instance, may open to a side yard through a wall of sliding glass doors. A privacy fence at the property line not only extends the room visually, but also provides an area for play equipment.

Such use of the adjacent yard becomes a functional part of the room itself. Low storage elements for toys and equipment add to space usefulness.

This type of planning and thinking applies to every interior area of the house. There really is no interior area that does not have some relation to yard and garden.



The adults bedroom might have an outdoor lounging or physical exercise area. Outdoor gymnasium equipment could be housed in low storage cabinets.



Japan, 1800

A Physical and Visual Extension of Entry

1957

2



The kitchen patio may be not only a visual extension of space, but include related functional landscape features such as a barbecue, and herb and vegetable gardens. If space is limited, an adaptation of the old strawberry barrel, a vertical wall or fence of strawberries, could adjoin the kitchen to provide beauty as well as a useful crop.

Bathrooms can also be extended visually with the introduction of a privacy fence that is practical as a sun trap. With proper planning, the garden outside the bath can provide space for sun bathing and home exercise equipment.

The service area, opening from the service porch or laundry, can include storage walls which house power shop equipment, garden tools, and containers for trash disposal.

Obvious extension of living areas includes the space outside the living room, family room, den, and hobby room. These outside areas can surround fire pits which are as effective outdoors as are fireplaces inside. Recreational areas may include swimming pools, space for such games as croquet, badminton, and horseshoes, areas for more formal conversation groupings, and outdoor meals.

These thoughts may also be extended to the carport or garage. During inclement weather children can use the covered area for play. With intelligent planning there is no reason why the four hundred square feet usually devoted to the car cannot be planned for family use as well. Large parties can center around buffet arrangements in this place if it is planned from the outset to be as pleasant as other parts of the house and yard.

Even the entry can be so planned that it is continuous from inside to outside, with effective planting to provide the required privacy.



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Yard Use



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Another solution might be the "doughnut" plan with a roofless garden room in the center. Such interior garden space, accessible for all kinds of service, can greatly expand the living area of the house. It certainly eases the circulation within the property when "total" use is made of the building site.

Unfortunately, we must usually comply with zoning laws that eliminate many possibilities for free design, even though it had been proved in other countries that houses, built without these restrictions, still provide attractive neighborhoods. Actually, it boils down to one's ability to design a good house in a good community. A bad house will still be a bad house, no matter how far it is set back from the street. A requirement of twenty-five feet as a setback will not necessarily make an esthetically good community.

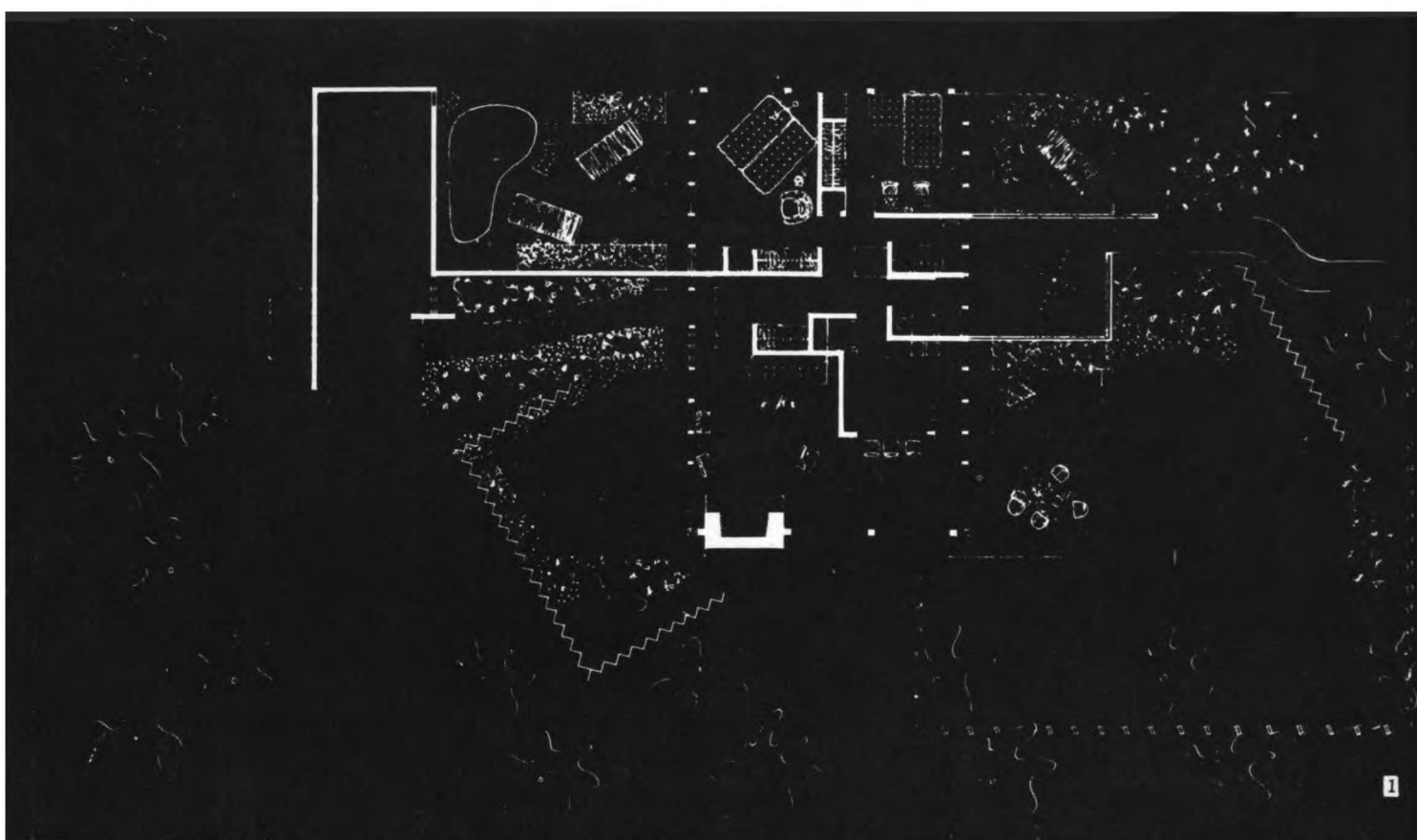
It should be possible in planning a neighborhood, for the designer to build on the property line or not, as he deems best for each individual lot. A straight line of houses is not necessarily pleasing. Less rigid planning, which allows houses to grow from the sites in an undulating kind of pattern, might be as rhythmic as an orchestral interlude. Courts in the front yard and varying setbacks could be quite pleasant. Any good design depends on the designer. This is an important point in favor of the total planned community as against the hit-or-miss result of little, or no planning.

The fact remains, however, that even with the observance of the front yard setback, we can strive for better and more complete use of the side and rear yards. We can take advantage of planting and fences as devices for achieving the privacy we need on small lots as well as for visually extending the boundaries of the house to the property line itself for a feeling of spaciousness.



Chapter IV
THE HOUSE

To provide a way of life...not mere shelter...



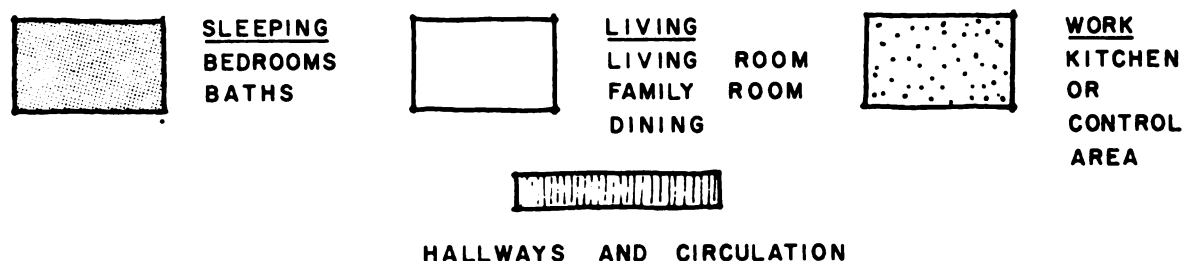
BASIC DESIGN CRITERIA

The design of the house itself, as the nucleus of community environment, is a product of many factors. Other than the requirement of good construction (to be discussed in a later chapter), the two main design factors are good planning and good visual effect or appearance.

GOOD PLANNING

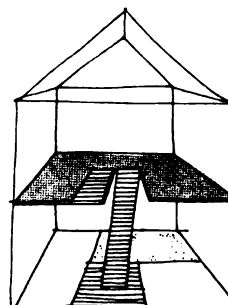
The factor of good planning can be evaluated in terms of livability or performance. Does the house actually work as the home of the family that lives in it?

To be able to analyze a plan, it is important to understand the basic areas of use within most houses. For simplicity, let us subdivide the house into three basic areas which, with their basic circulation, are indicated below.



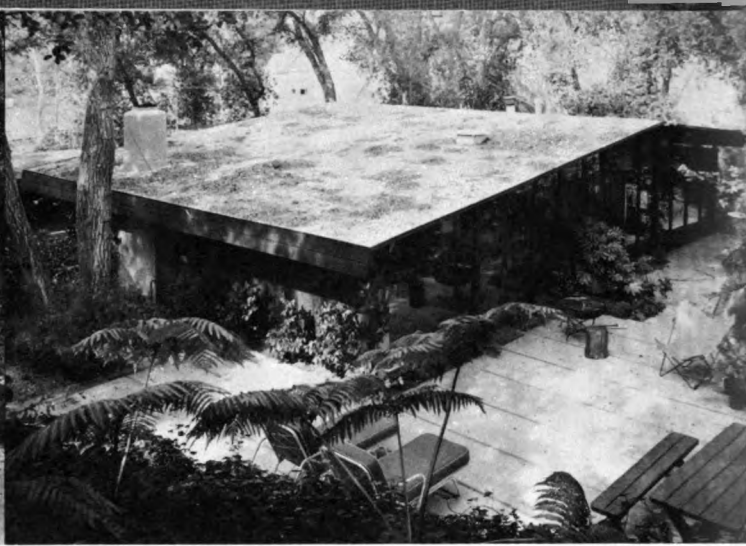
During the last century, most American homes were variations of the two-story, central hall plan, with living and work areas on the first floor and bedrooms upstairs.

This plan, adapted from the colonial house, can be very compact, but circulation is achieved only at the cost of much time and energy in climbing stairs. The relation of upstairs children's rooms to outdoor areas, and their control from the kitchen, is impossible. The lack of flexibility, especially for future expansion, is an additional problem.

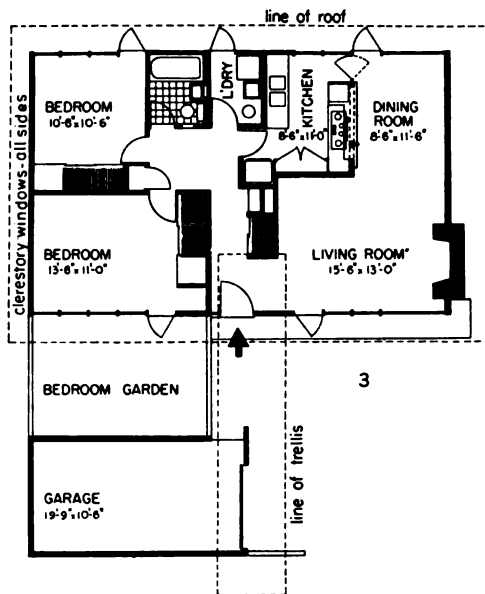




1



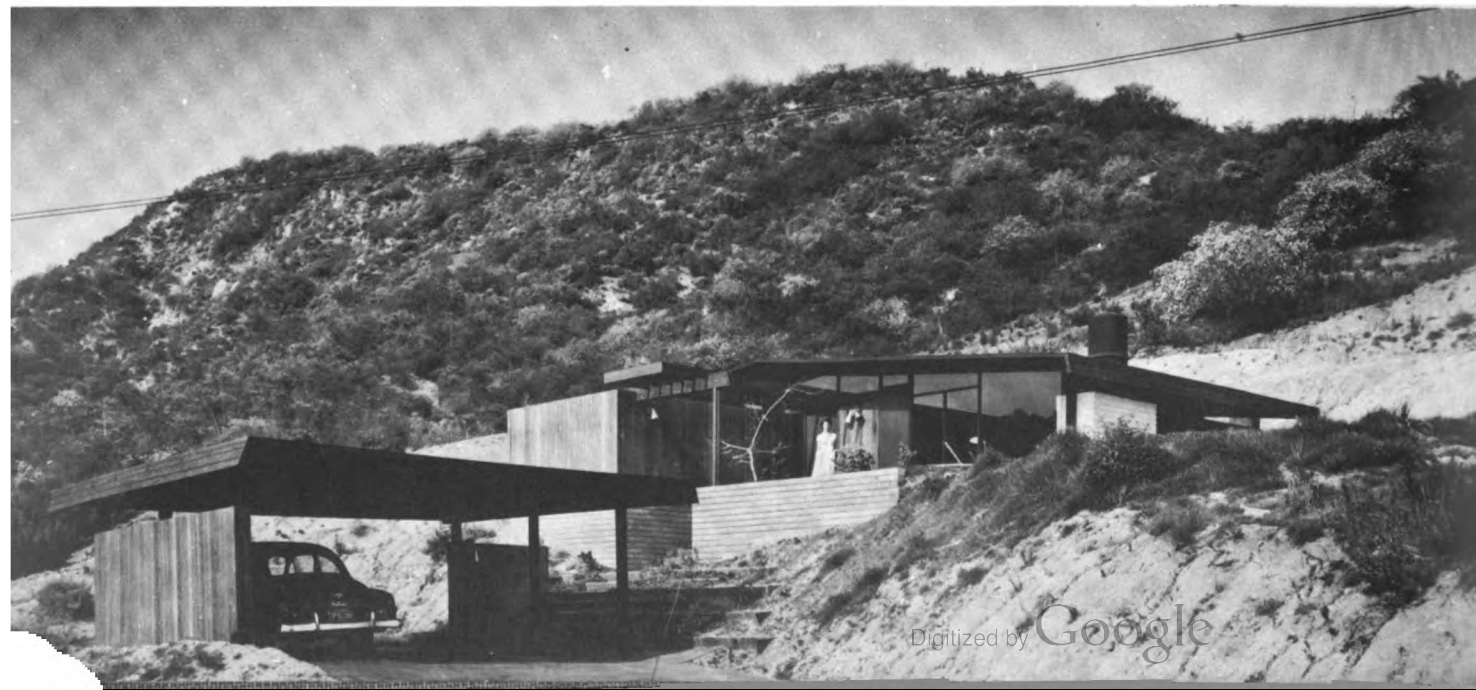
2



3

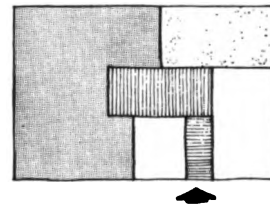
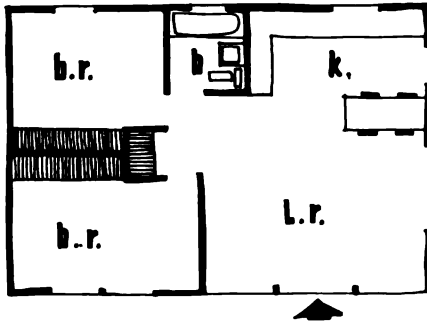
Simple rectangular plan
as shown on page 68
adapts to medium and
steep sloping lots.

4

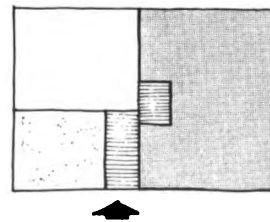
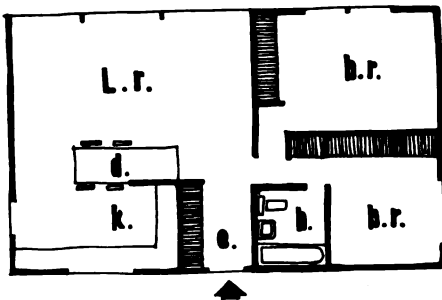


THE MINIMUM PLAN

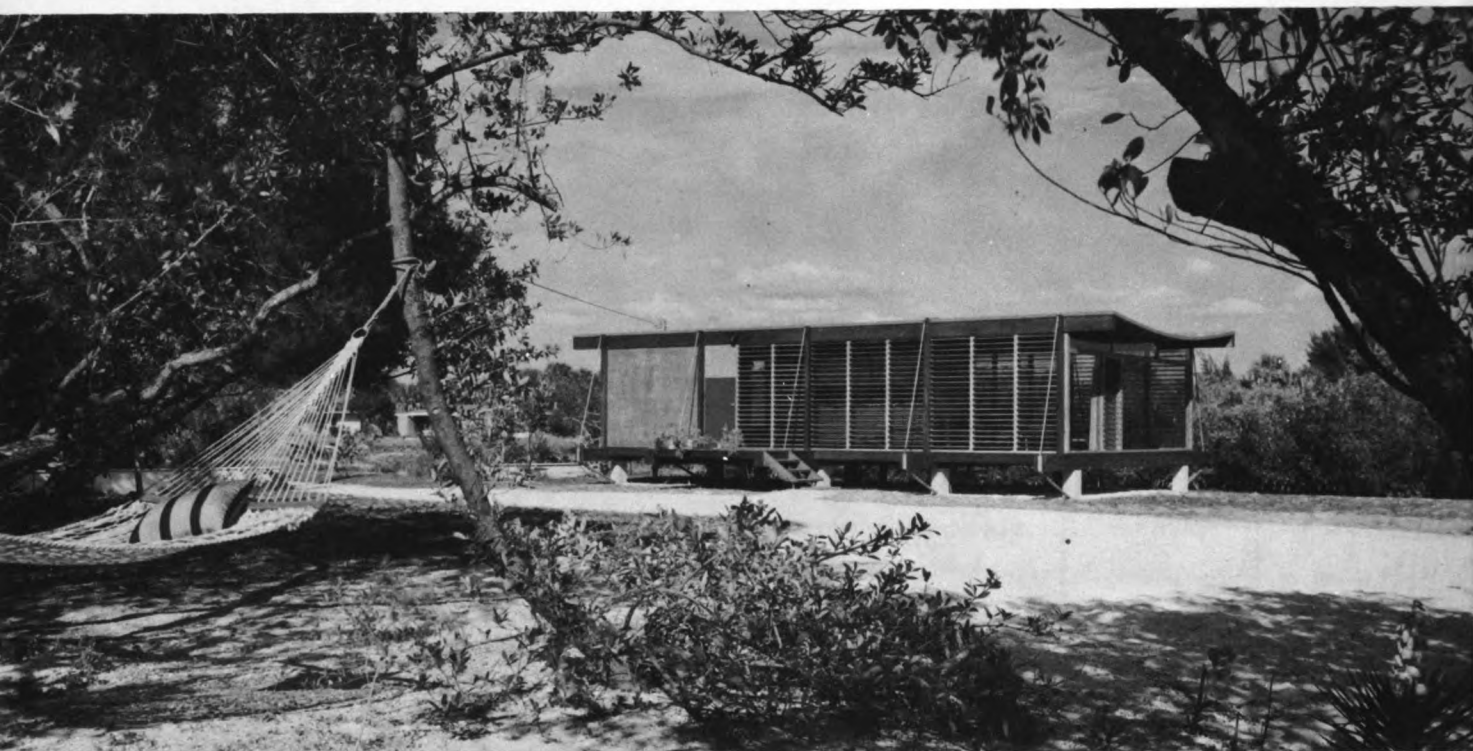
The most common plan developed by the tract builder has been the simple one-story rectangle. The box shape, with a minimum of exterior walls and concentrated plumbing, was easy and cheap to build and was readily sold in a period of extreme housing shortage. Today, however, the minimum two bedroom plan is inadequate for all but a few families.



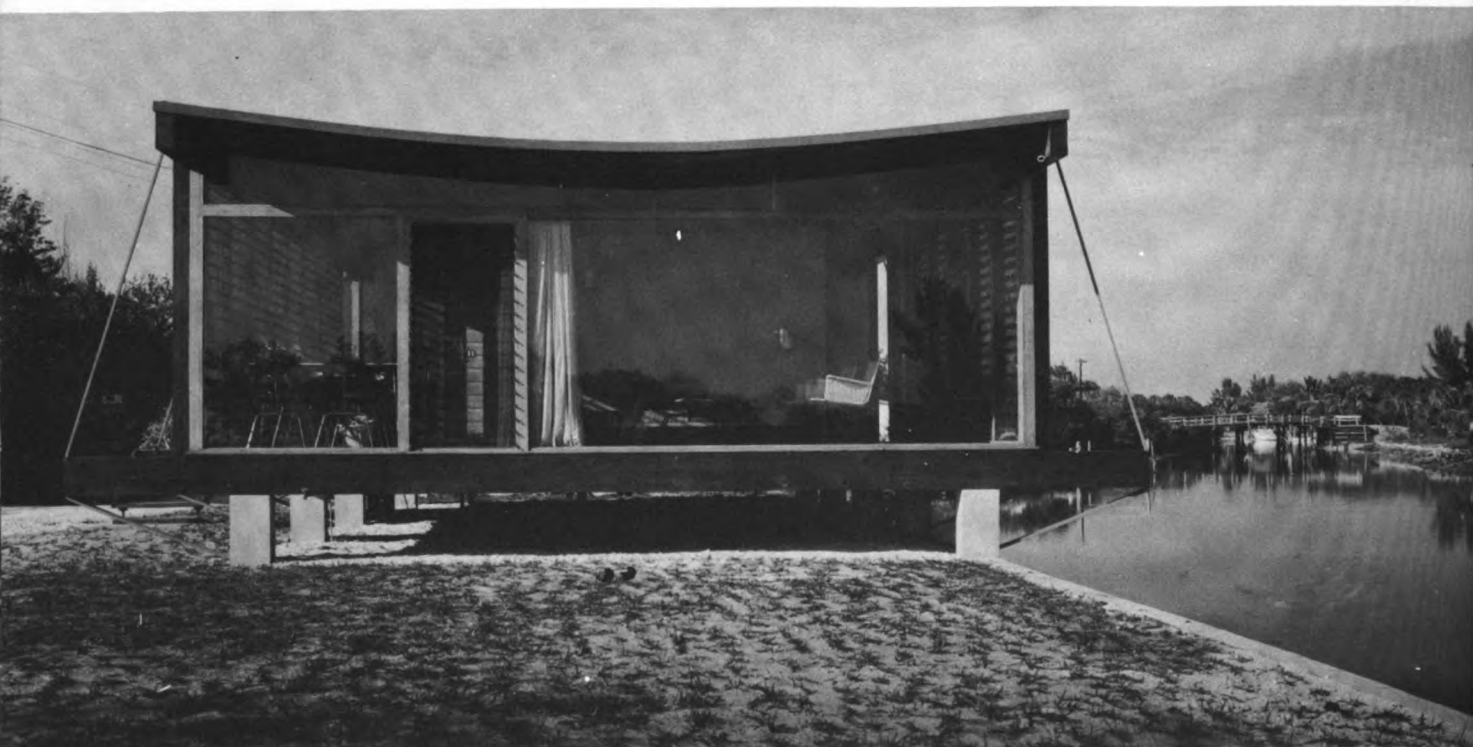
As shown by the area analysis, this plan has its already inadequate living area split by the circulation pattern. In addition, the location of the rooms makes any attempt at interrelation with outdoor areas difficult. A variation of this plan below shows an arrangement which overcomes these faults.



By reversing the house and thus changing the location of the entry, the problem of circulation is greatly relieved. In addition, the orientation of the living area to the private rear garden, and the location of the kitchen, with control of the front door and street view, are definite improvements.



1

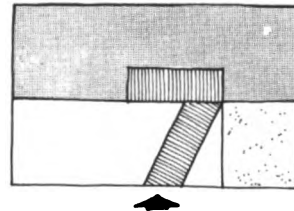
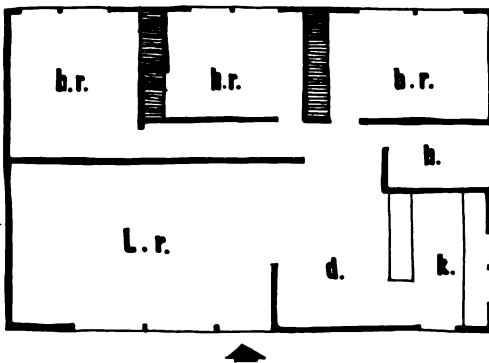


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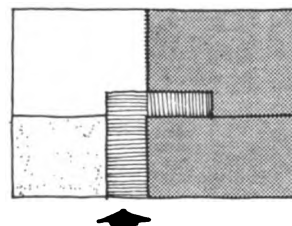
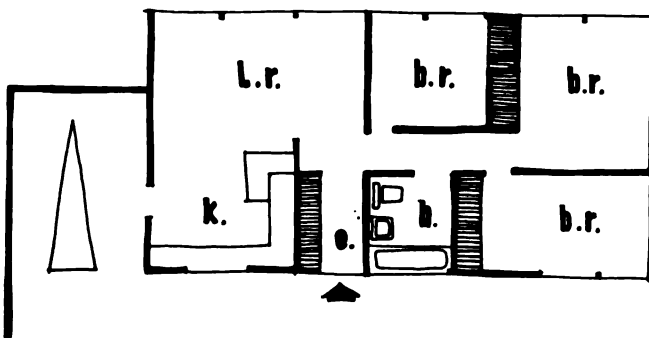
THE SIMPLE AND OFFSET RECTANGLE

The original rectangular plan may be expanded by the simple addition of a third bedroom into one of the layouts most popular with builders. Despite the change, many undesirable features remain.

The living room still faces the street; the extra bedroom is too far from the inadequate bath; entrance traffic is poorly located and excessive, while hall circulation is simply screened-off living space.

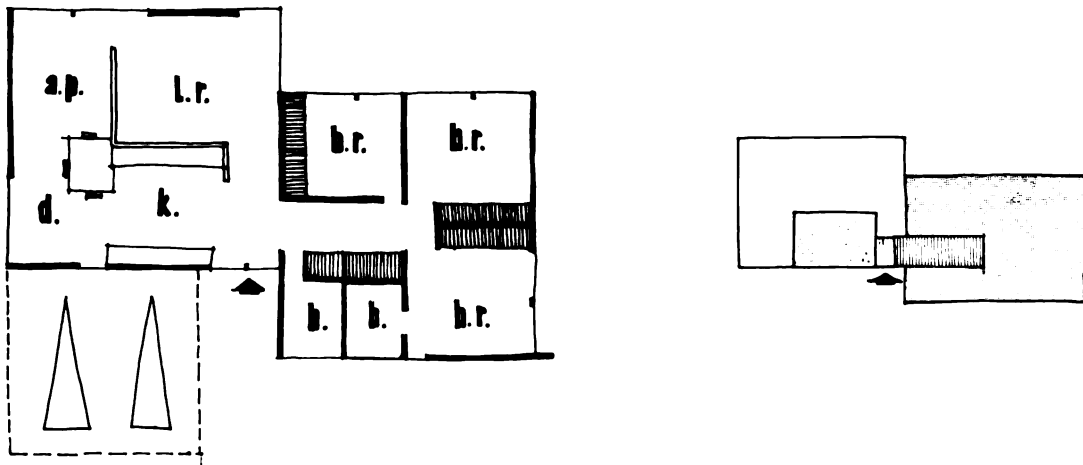


All of these disadvantages can be eliminated by dividing the house into living and sleeping areas across the small dimension of the rectangle instead of lengthwise as above, and by opening the living areas to the garden.



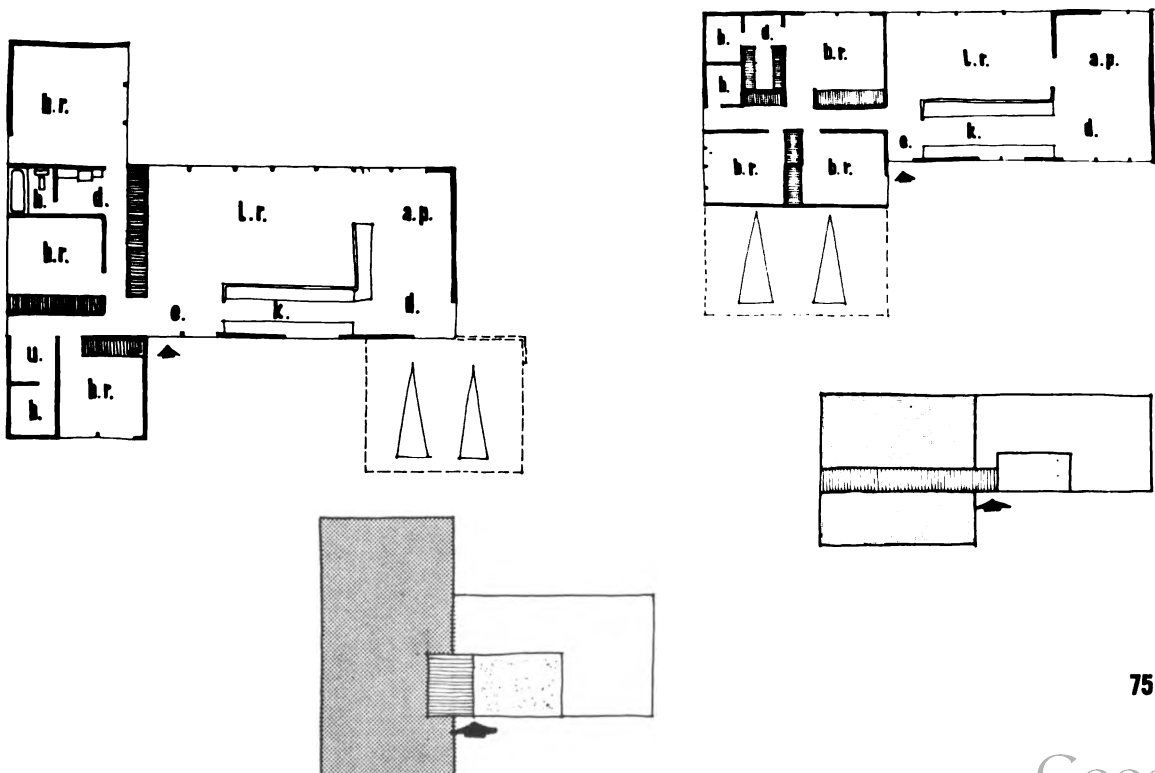


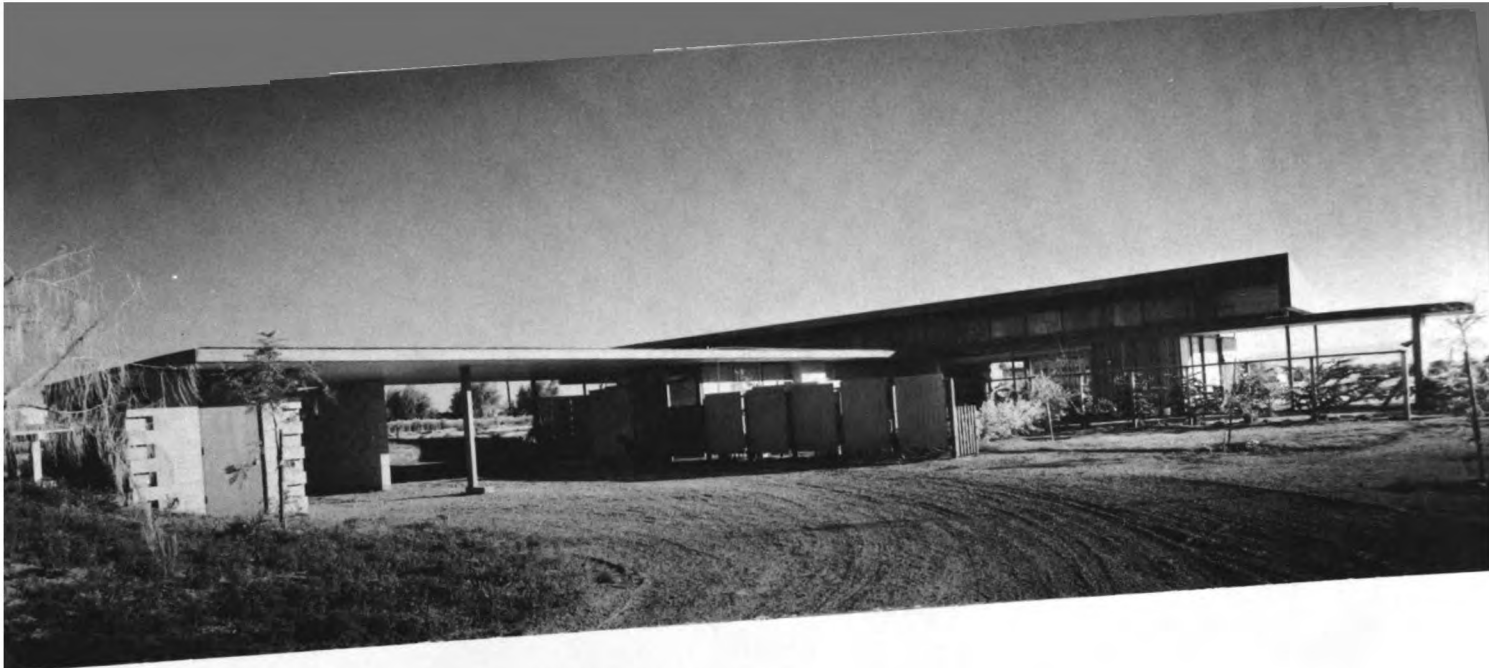
A further modification is the offset rectangle plan which reduces circulation space still more, provides a possible garden terrace in the rear of the house, and allows for greater interest on the street elevation. The addition of a family, or all-purpose, room gives greater flexibility and use to the living area, while the second bath off the master bedroom adds an essential requirement in a house of this size.



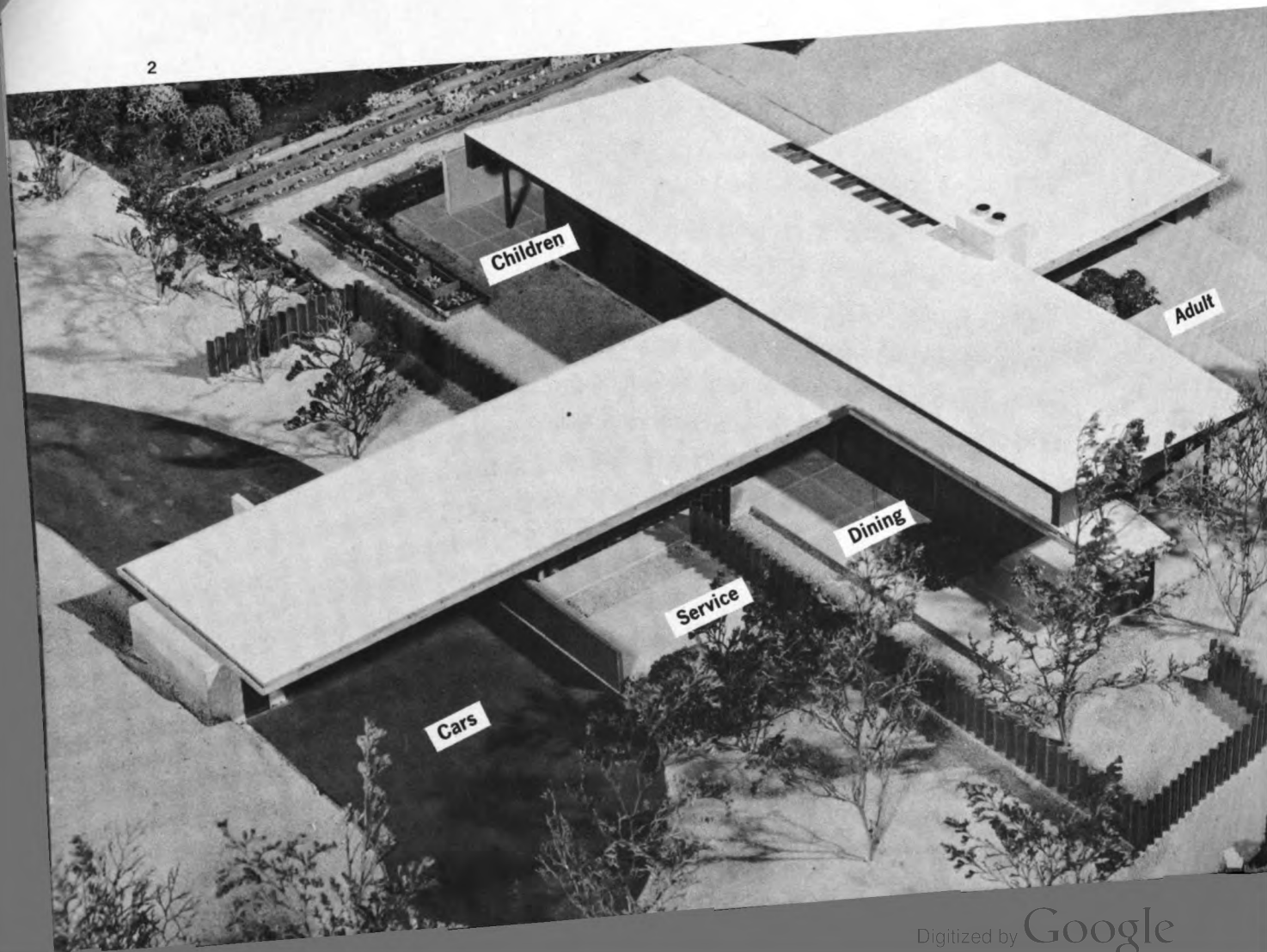
THE "T" AND "L" PLANS

These plans are adaptations of the offset rectangle plan. They allow greater flexibility of layout, good separation of living and sleeping areas, and compact circulation. Interesting street elevations are possible with many variations. From a structural standpoint they may be a little more costly to build because of greater exterior wall area and irregular roof framing plan.

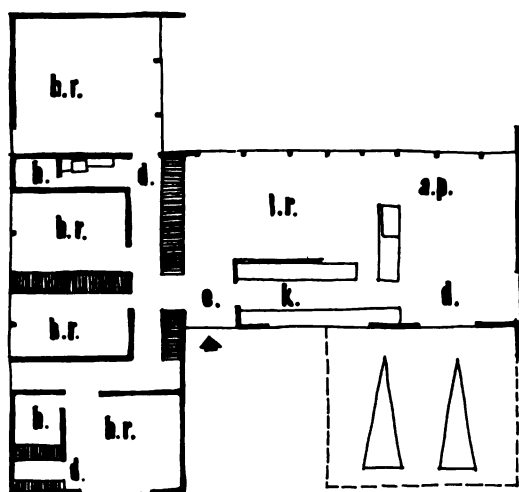




1



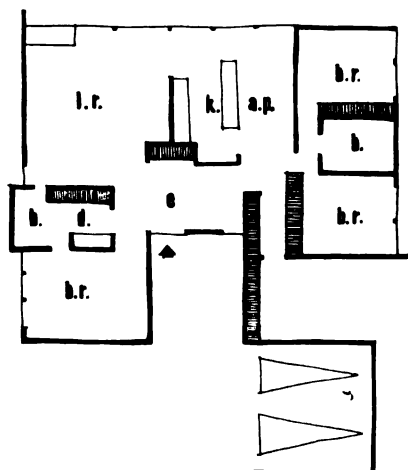
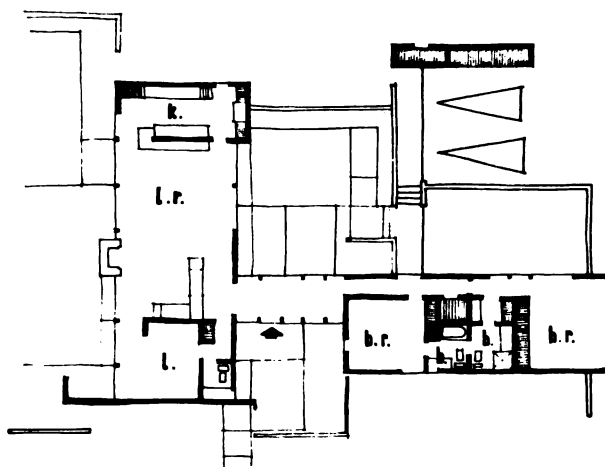
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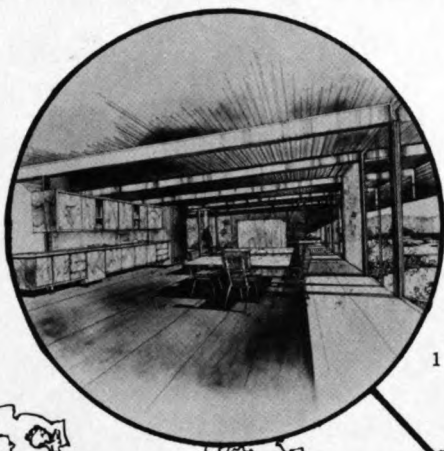
One additional advantage in a plan type such as the "T" or "L", where the sleeping and living areas are separate sections, is that a four bedroom sleeping unit can easily be substituted for the three bedroom unit previously shown. This allows a builder to combine one or more standardized living units with either three or four bedroom sleeping units as required.

OTHER VARIATIONS

This plan of a custom designed house illustrates the possibilities when the "L" type plan is pulled apart, allowing the space between and around the parts to be used for a variety of exterior courts. Here is an excellent separation of living and sleeping areas, with the carport structure serving as an enclosing mass to provide privacy for the outdoor living areas.

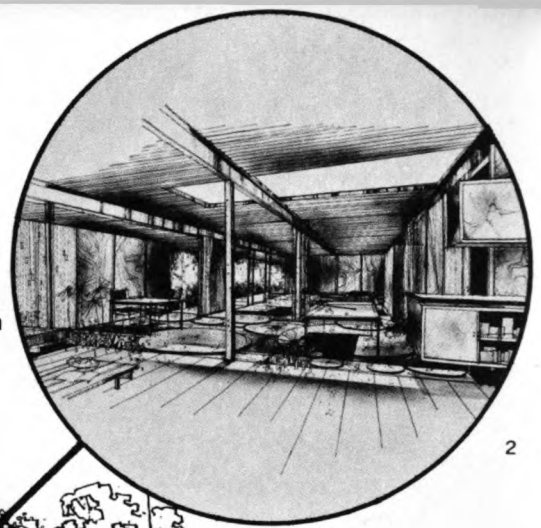


The plan on the left shows a division of the sleeping area into two parts separated by the living area. This isolation of master bedroom and bath from the children's bedrooms affords the parents additional privacy, and fulfills the requirements of many families.



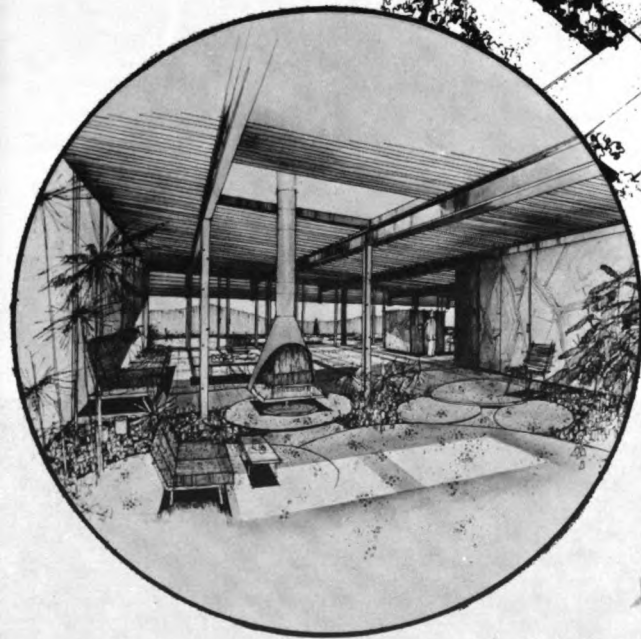
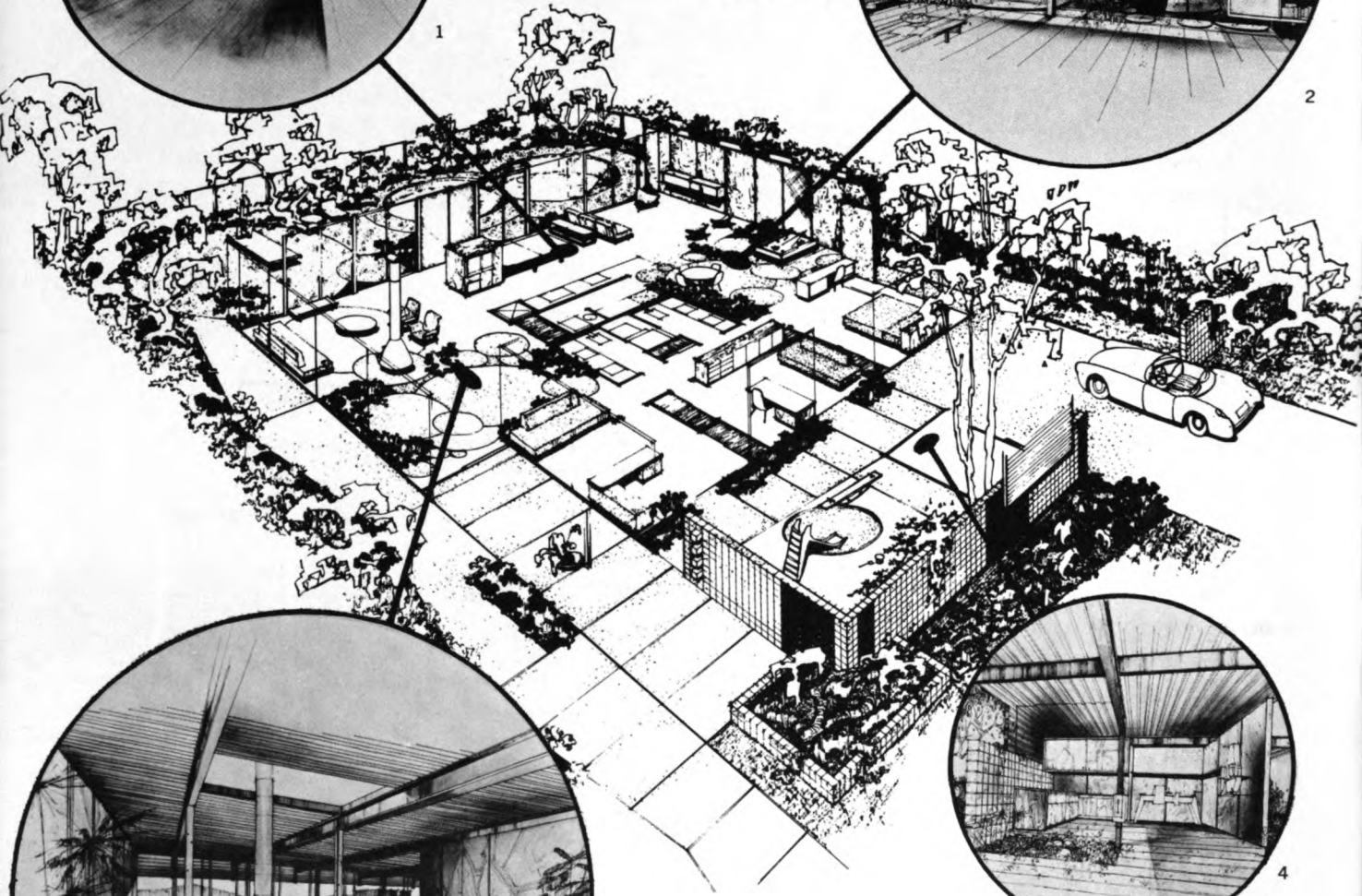
Kitchen

1



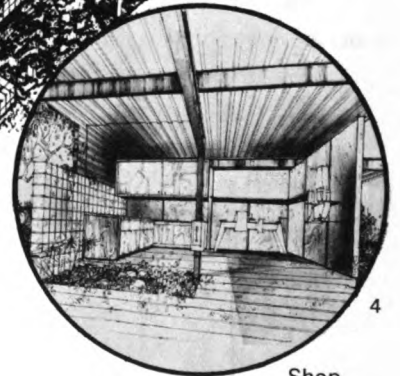
Interior Garden

2



Entry Garden

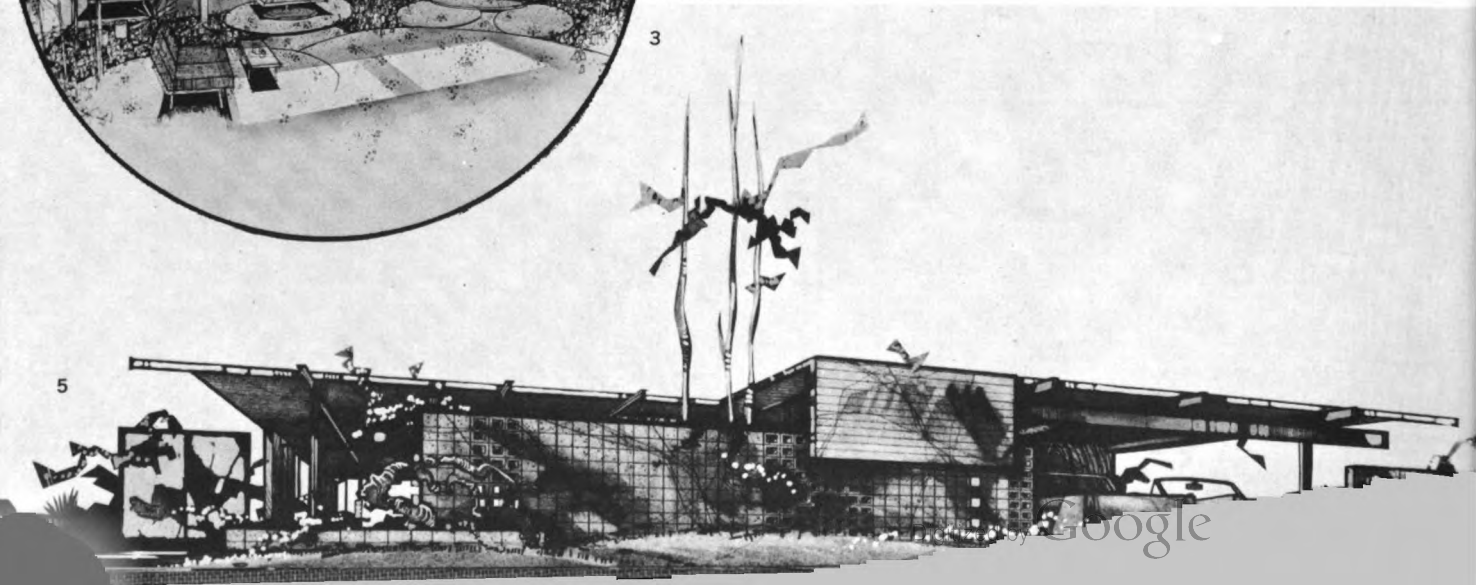
3



Shop

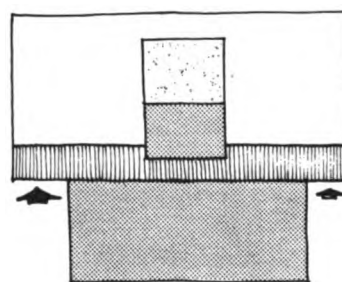
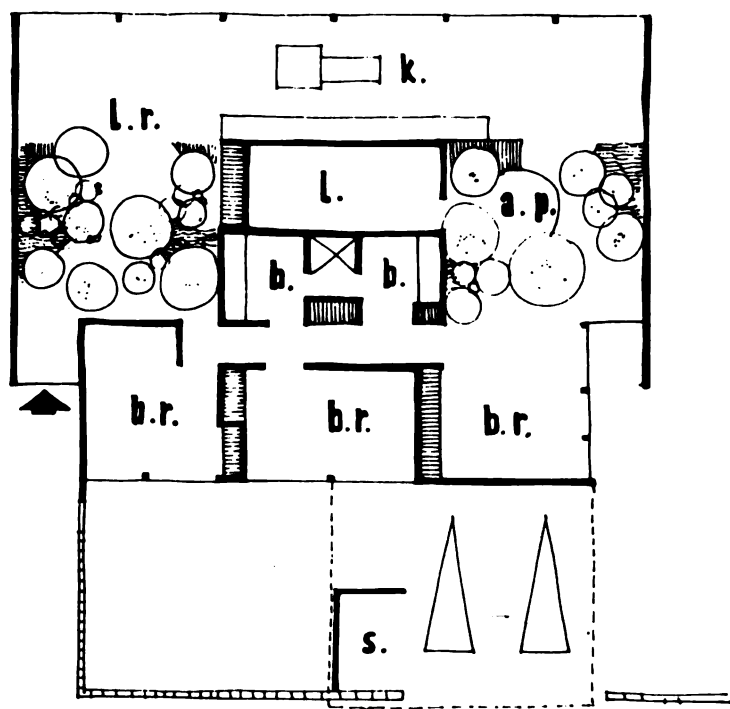
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5



THE UTILITY CORE PLAN

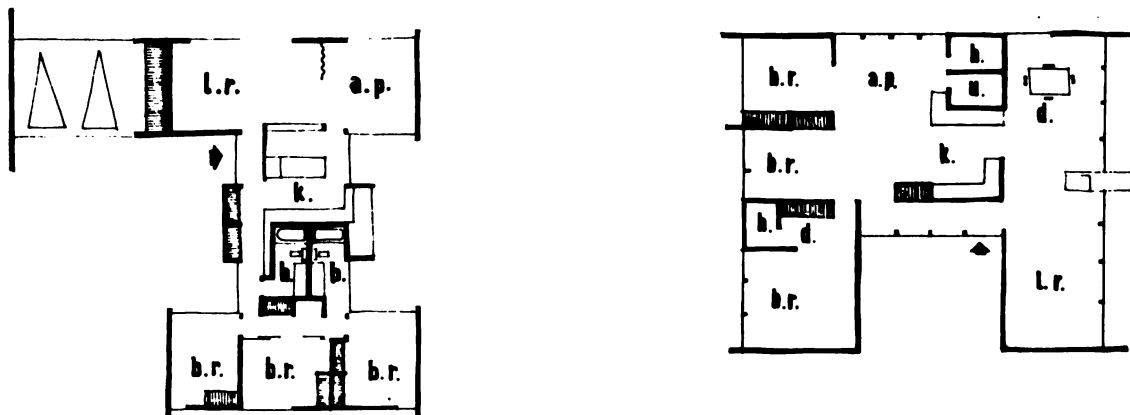
The rectangular utility core plan has several advantages. The house may be almost square and very compact, with a good concentration of utilities. In addition, the core acts as a buffer between the sleeping and living zones. The problems of this plan include the difficulty of properly relating the kitchen, garage and main entrances, and the excessive circulation space that is often required. This can be helped by opening up the exterior walls and actually using the lot as circulation and access in areas of mild climate.



THE "H" AND "U" PLANS

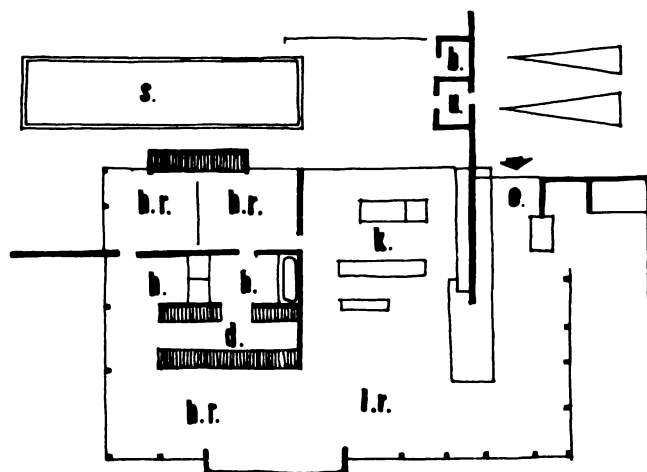
The utility core plan, may be adapted to the so-called "H" and "U" type plans which divide living and sleeping units into separate sections. This layout is especially applicable to a utility core concept in which the kitchen becomes part of the connecting link. Excellent separation of activities is achieved, and useful patios are afforded shelter and privacy. In addition, each room can receive cross ventilation. The chief disadvantage of these types is in the long perimeter walls (almost fifty percent more than the same space in a simple rectangle), resulting in higher construction cost as well as increased expense of heating and air conditioning.

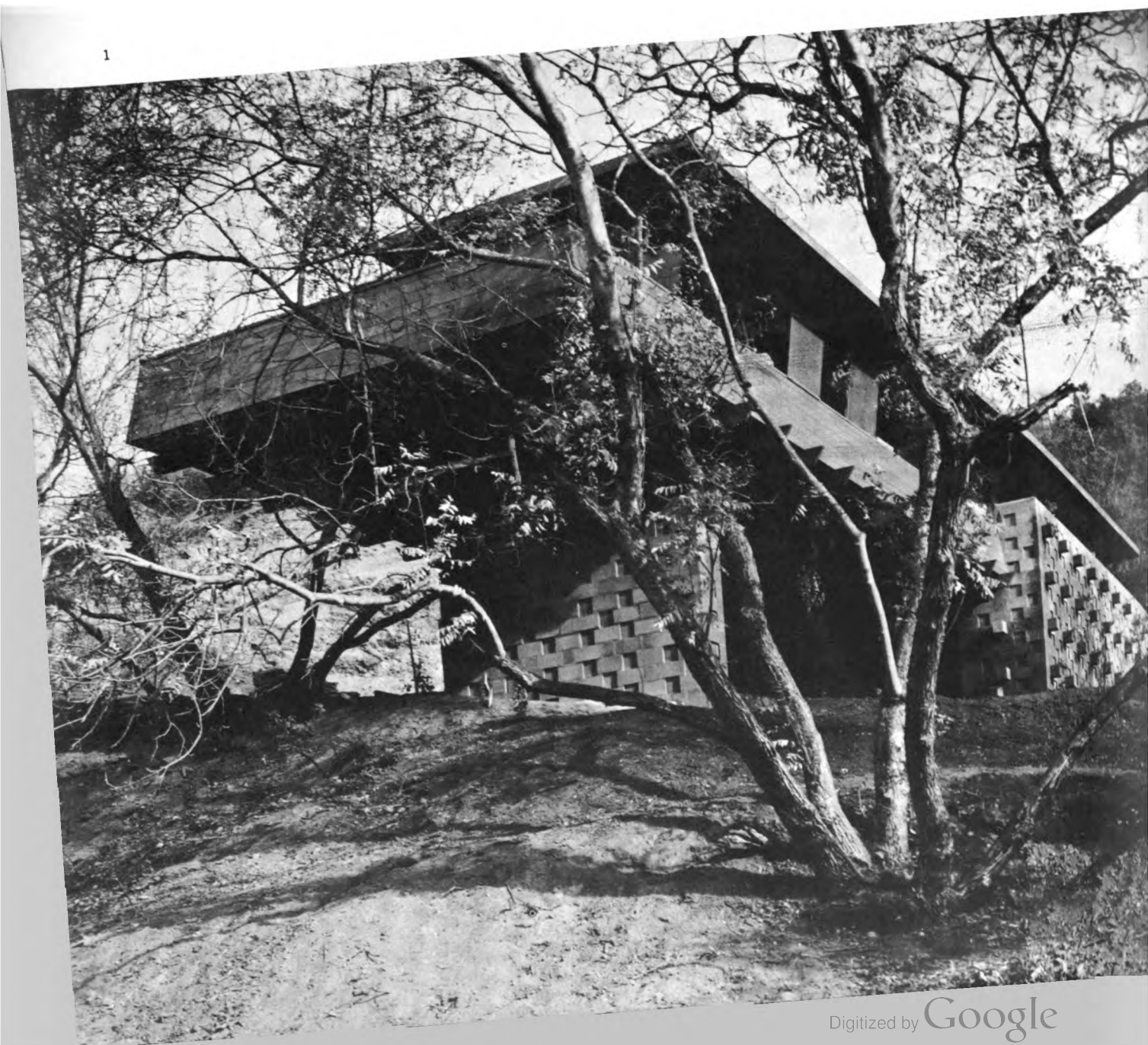




The "H" plan, illustrated above, shows the application of the utility core as the connecting bar of the "H" with the family, or all-purpose, room relating to the living wing and kitchen. The "U" plan shows the all-purpose area still related to the kitchen, but adjacent to the sleeping wing rather than to the living area. In this way the space can be utilized as a play area for the children with easy supervision from the kitchen control center. Another feature of this "U" plan is the lack of hallway space. This is one of the plans that seems to break the "rules" as far as circulation is concerned, yet actually it works quite well in practice. The reason is that while certain rooms are used for circulation, they are not criss-crossed with primary access patterns, but remain relatively undisturbed as secondary traffic is confined to their edges or ends.

The plan below illustrates the fact that no plan is good or bad merely because it follows, or fails to follow, a set pattern or formula. It is successful if it properly relates to the way of life of its individual inhabitants.

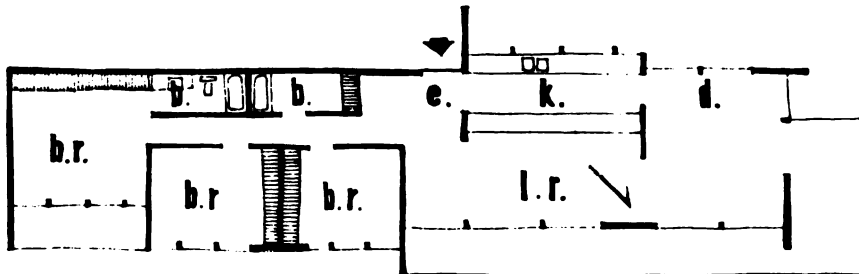




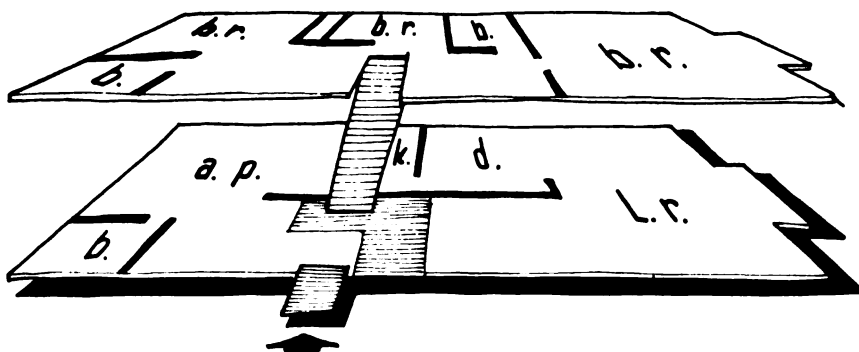
In this plan there are no halls because the total interior space functions as circulation. Not only is the house completely open to secluded exterior areas, but the living, kitchen, and sleeping areas are open to each other. The master bedroom may be isolated or made a part of the living area as the need arises. This is an excellent house that follows no set rules of zoning or circulation, yet adapts itself well to site and occupants.

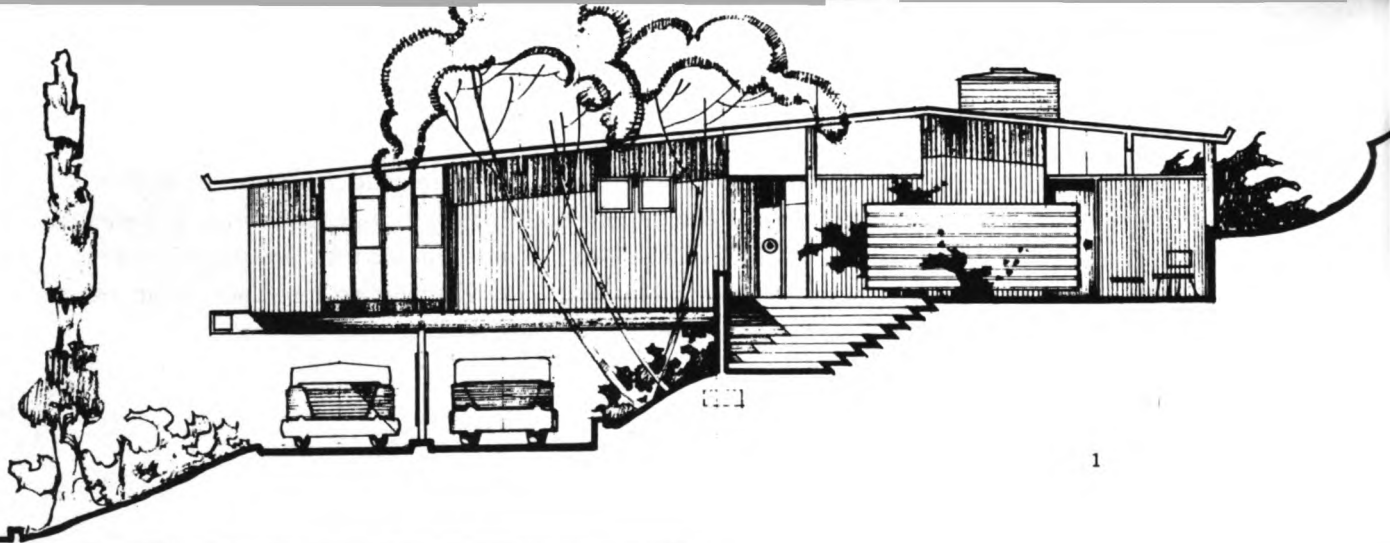
THE IN-LINE PLAN

The in-line plan is an excellent solution for many unusual site conditions. On a narrow lot it allows access to side patios and outdoor areas; on steep hillsides it allows the maximum economy of construction and land usage. It can have good circulation (at the expense of a long corridor) and the same good orientation for all the rooms.



The plan may be adapted to a two-story house, where it helps to concentrate circulation and utilities, while retaining the advantage of providing the best orientation for both floors.





1



2



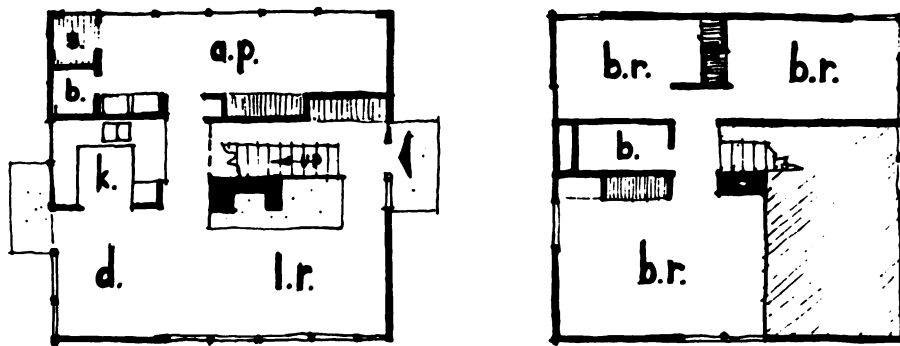
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4

THE SPLIT LEVEL PLAN

The split-level plan produces a maximum of total interior area for a house of small over-all size, and its separate levels can give greater privacy and interest in each area. It is very adaptable to sloping lots, and helps to solve the problems of deep foundations in northern climates. However, it may require a somewhat complicated framing system, and is difficult to relate to outdoor areas without special terracing or grading.

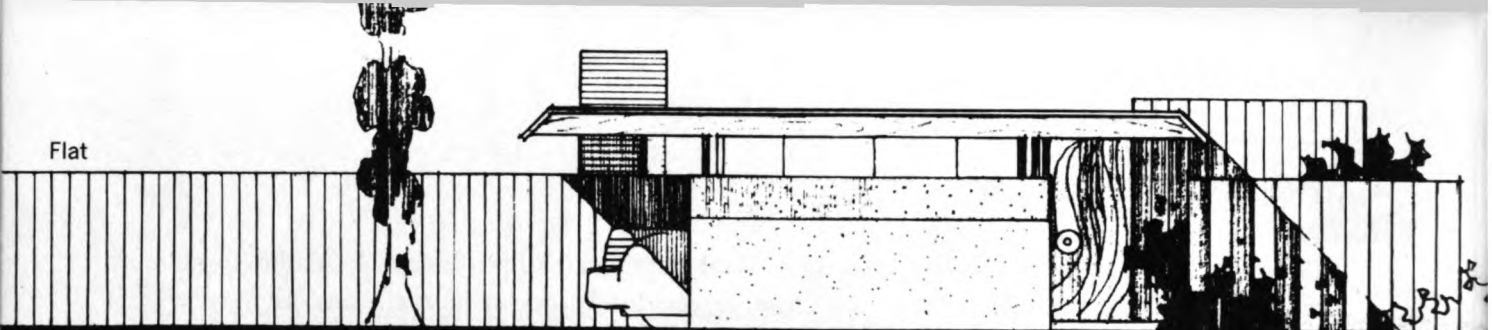


To sum up: Good plans are generally simple plans. Each type has its pros and cons, and each has endless variations. The less complicated variations of any type can be adapted to provide a good solution for housing the average family at a reasonable price.

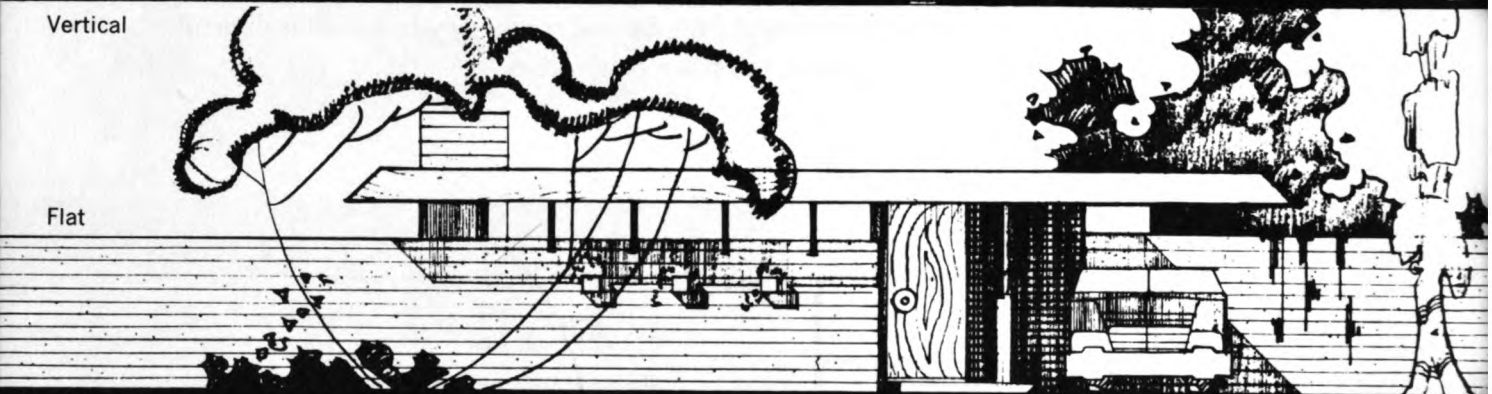
In general, all the major plan types try to achieve the following relationships:

- The separation of living, sleeping, and working areas into well-related functions.
- A main entry convenient to the center of the house circulation.
- The location of the kitchen as the home's work center and control unit.
- A secondary entrance and access from the garage and service areas to the kitchen.
- The reduction of otherwise useless circulation space to a minimum.

Flat



Vertical

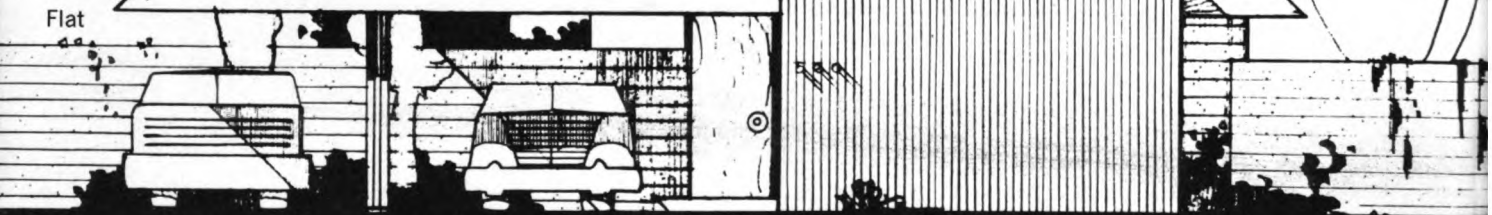


Flat

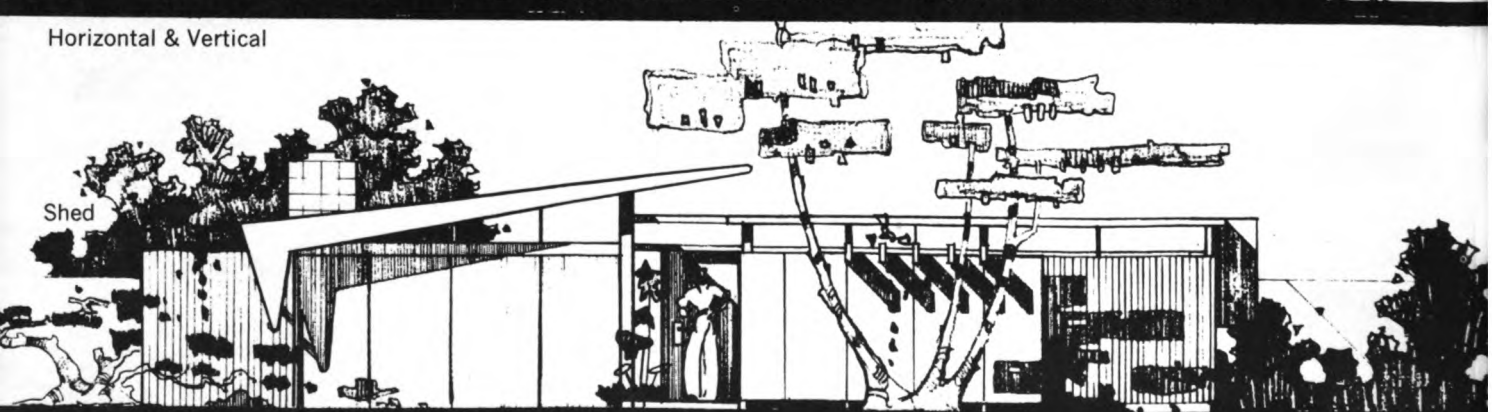


Horizontal

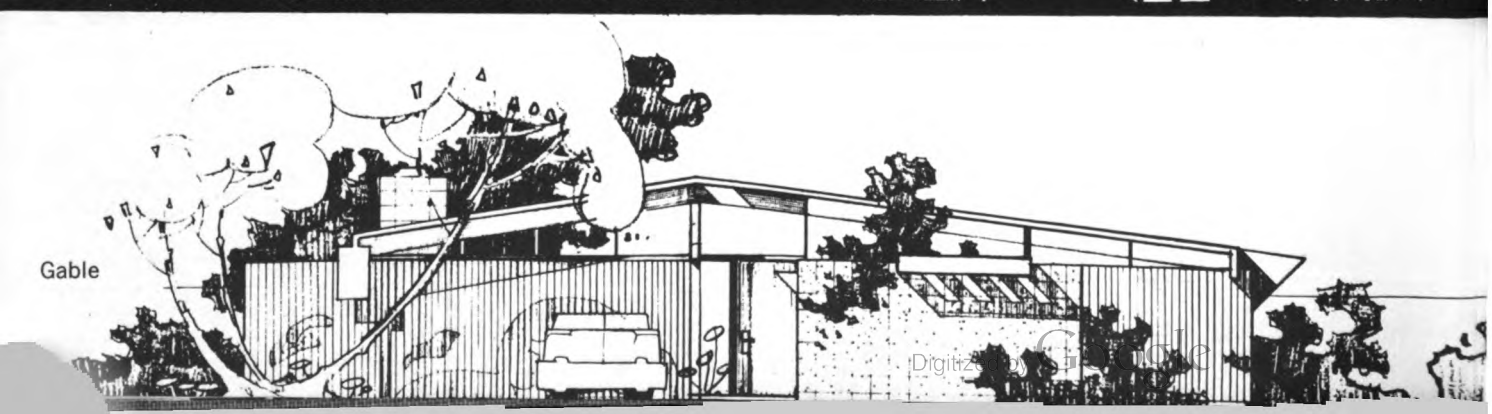
Flat



Horizontal & Vertical



Shed



Gable

APPEARANCE

A good plan solution, while important, cannot, in itself, solve the problem of house design. It is necessary to develop the plan to a three-dimensional form which is not only visually attractive, both from within and without, but which complements the plan and fully utilizes its potentialities. This involves problems relating to the appearance of the house which are not mere matters of taste or style, but are important design factors which help to make a good looking house a good living house.

The design of the tract house involves certain factors in addition to the normal goal of providing a handsome appearance which is common to any residential design. These include:

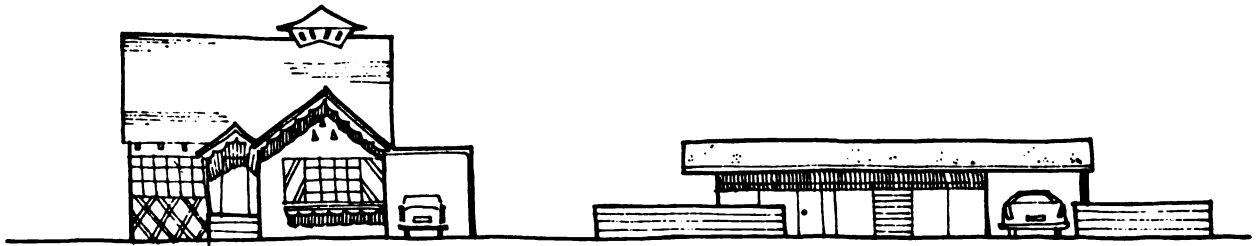
- The necessity of providing variety in rows of similar houses while retaining an over-all community character.
- The builder's desire to achieve an impression of size and expense without sacrificing economy.
- The appropriate adaptation of nearly identical plans to varying site conditions within a tract.

Since people perceive a house, or any other object, visually, the architect must employ design principles which produce visual forms and proportions complementary to the house or object that is being viewed. One typical application is the emphasis of the horizontal.



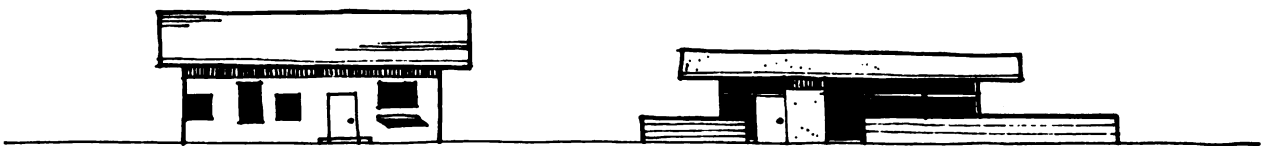
Horizontal lines tend to lengthen a form while vertical lines tend to shorten it.





The two houses above are drawn exactly the same width, and illustrate the application of this principle. By extending the roof overhangs, providing unbroken ridge and eave lines, and by adding horizontal fences, the right hand house not only appears larger, but tends to flow together as a harmonious design rather than a collection of unrelated units.

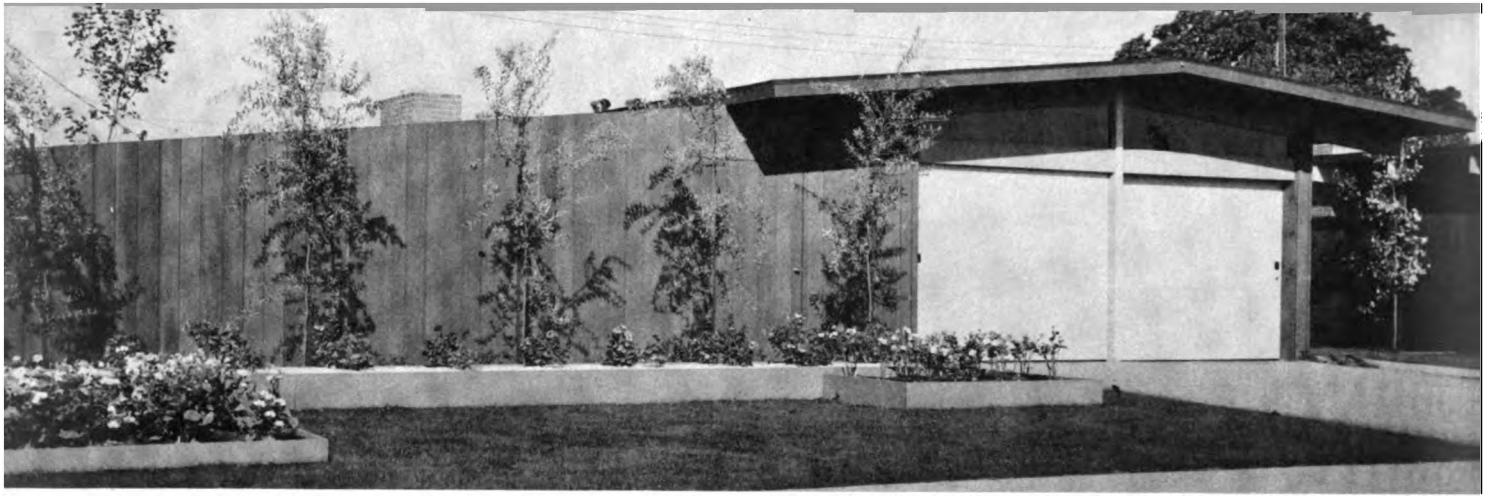
The sketches below show two other ways in which the appearance of houses may be improved.



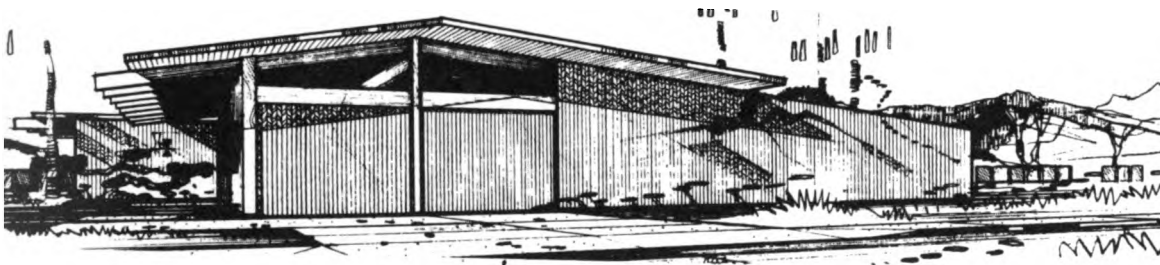
The combination of window and door openings, with the alignment of their heads and sills, along with the widely projecting eaves, provides a better proportion and helps to eliminate the "boxy" look.



The simplification of the roof by reducing projections and planes to a long, unbroken pitch gives an appearance of added width.

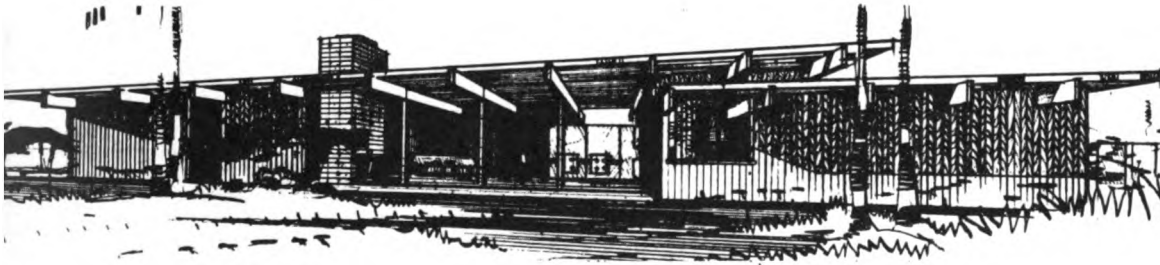


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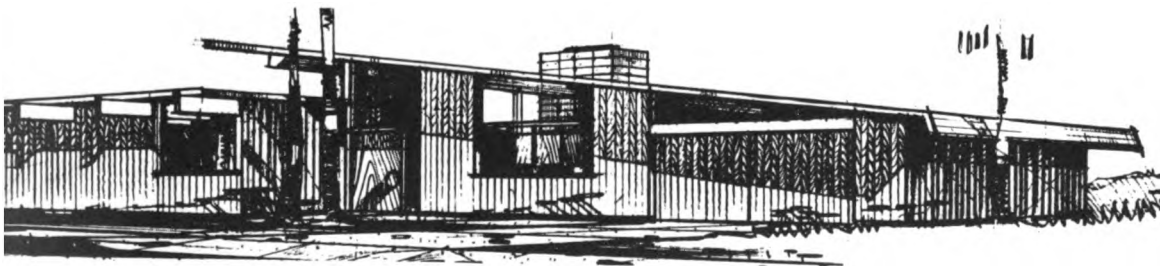
Gable

2



Long Shed

3



Short Shed

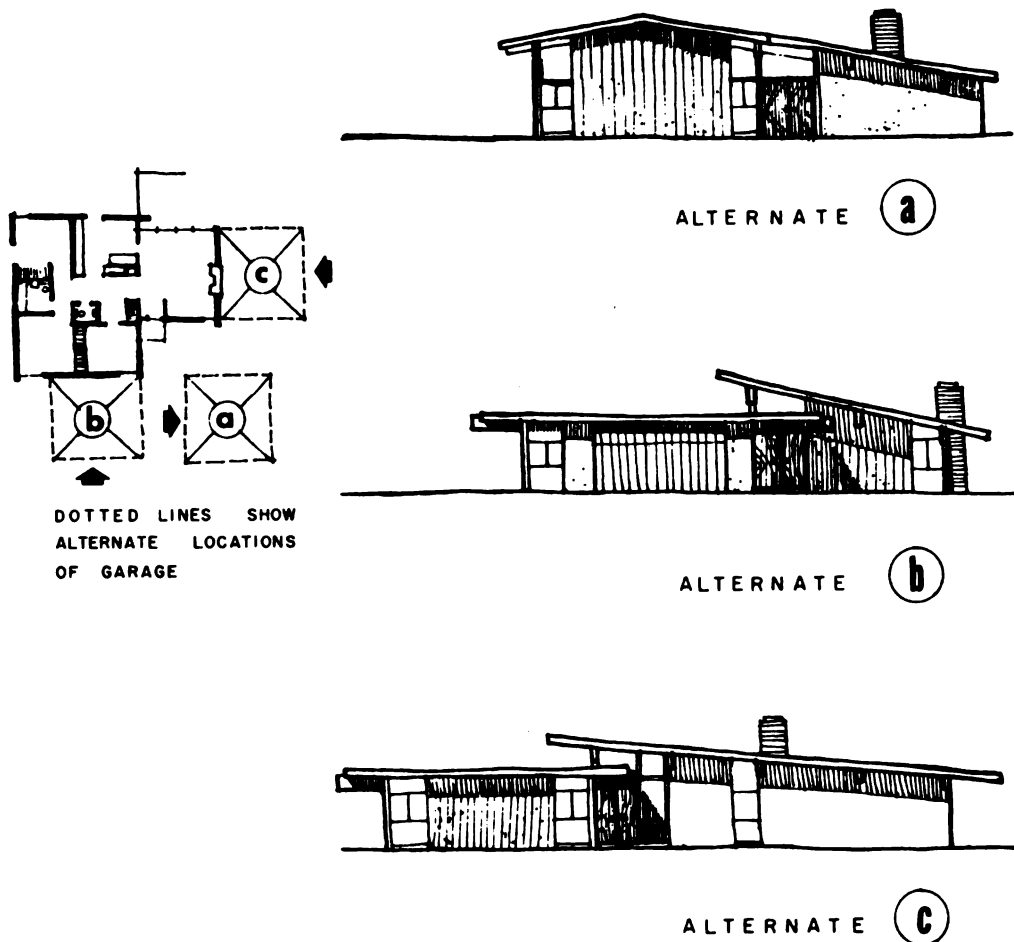
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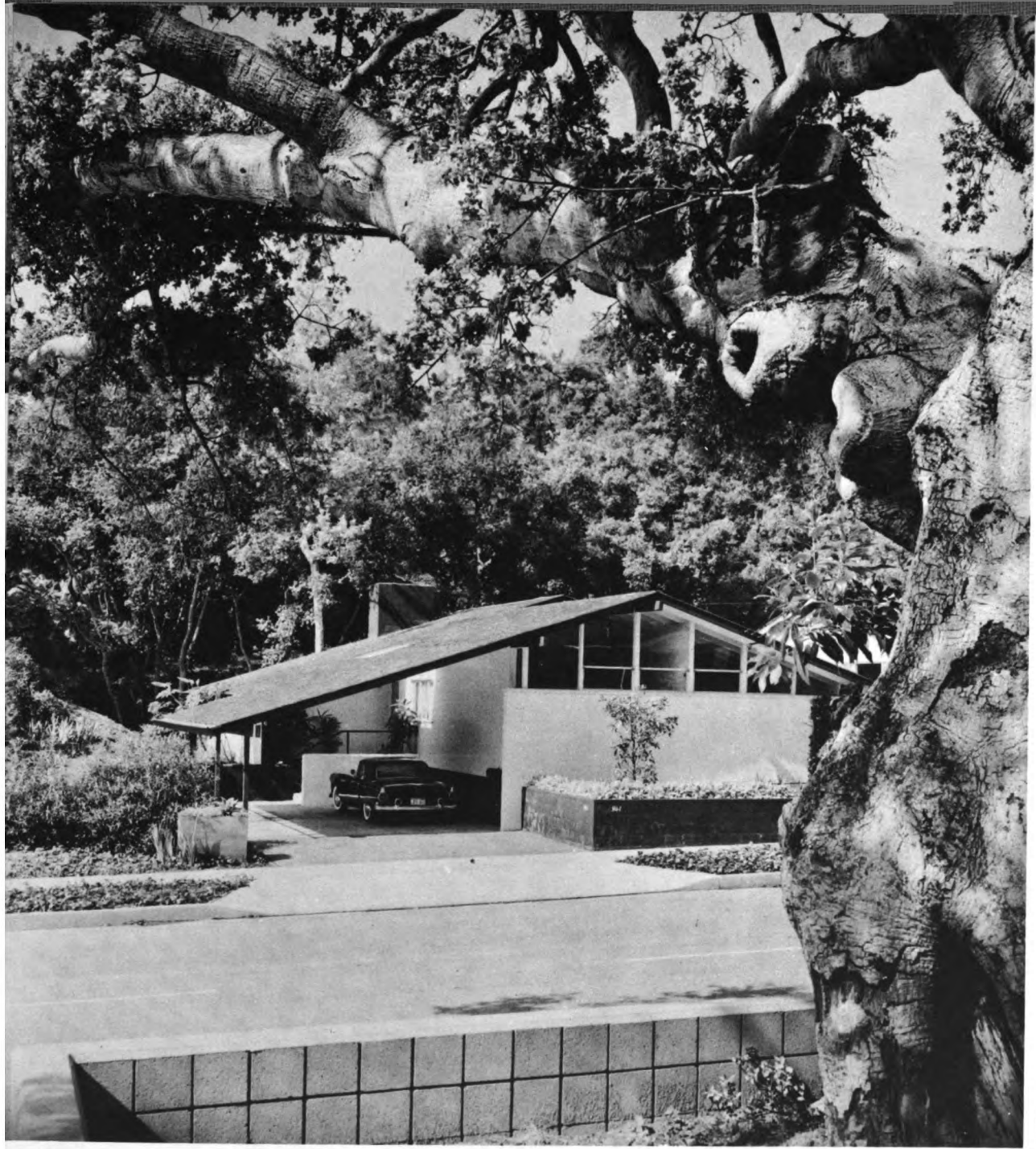


The architect and site planner must use ingenuity and imagination in giving a degree of variety to similar houses in a tract. Coordination of the design of the houses is more important than any attempt to vary each house merely for the sake of making them different. By the restrained use of complementing textures, materials and colors, and by changing such major design elements as carports and garages, roof lines, chimneys, garden walls and fencing, fenestration, etc., a large group of houses can retain a great deal of individuality, while maintaining an over-all design continuity.

For example, from the plan below, at least three different elevations can be developed, simply by changing the roof lines and garage location.



A further element of variety can be obtained by reversing and turning houses in relation to the street, and by varying setbacks and sideyards.



1

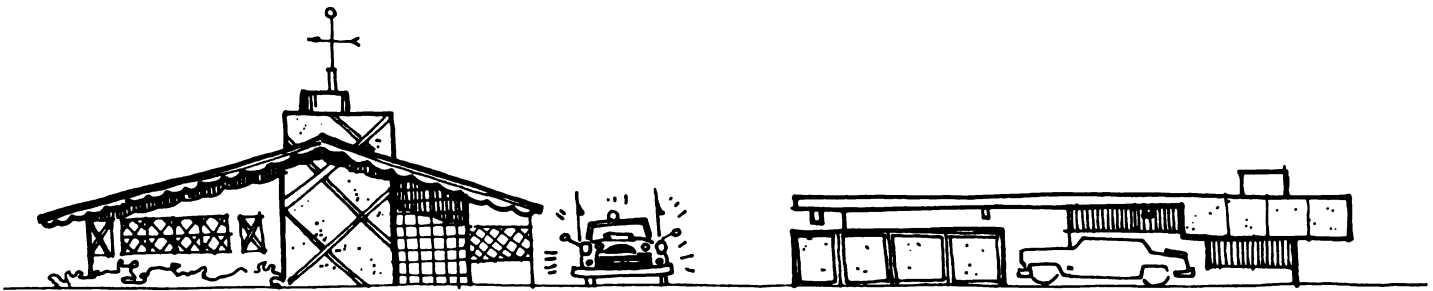


2

**Simplicity
versus Complication**

The problem of making a house look more expensive is not solved by the addition of "phoney" design elements and false veneers. Most expensive products, whether they be clothes, cars, or homes, are examples of restraint and good taste. Just as the most luxurious cars are generally the ones with the cleanest lines and the least chrome, so the most expensive-looking tract houses are those whose appeal is based on good proportions, proper textural contrasts, and carefully studied details without recourse to stylistic sentimentality and current design fads.

Examples of the use of applied design elements are familiar to everyone: ostentatious picture windows opening directly to the street; corner windows to give a "modern" look where no other reason exists; false dormers in attic spaces; windows in overhead garage doors complete with draperies and shutters; "ornamental" dove-cotes—all are false "features" applied in the misguided notion that they produce a more impressive appearance.

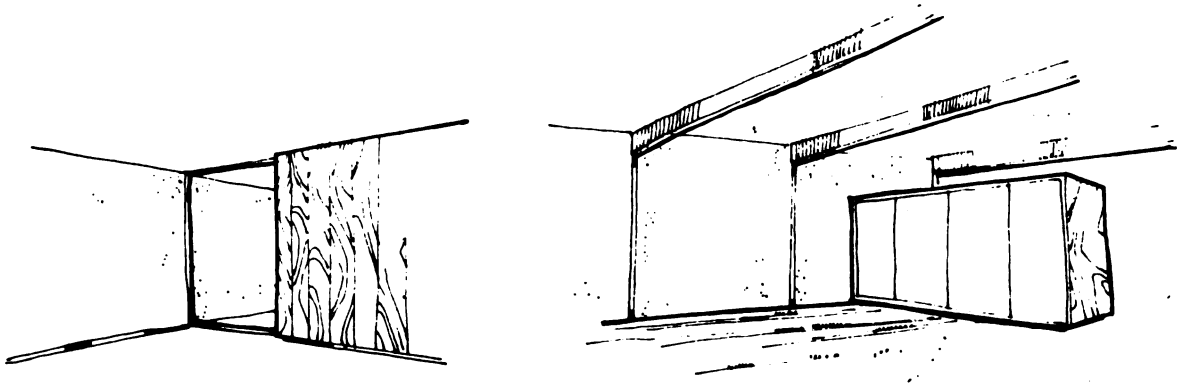


The interior of a house is, in many respects, more important from the standpoint of design than the exterior. Naturally, in the over-all problem, both exterior and interior appearances are treated as important factors, but the fact remains that most of the living activities of the family are carried on either inside the house or in private exterior areas secluded from the street.

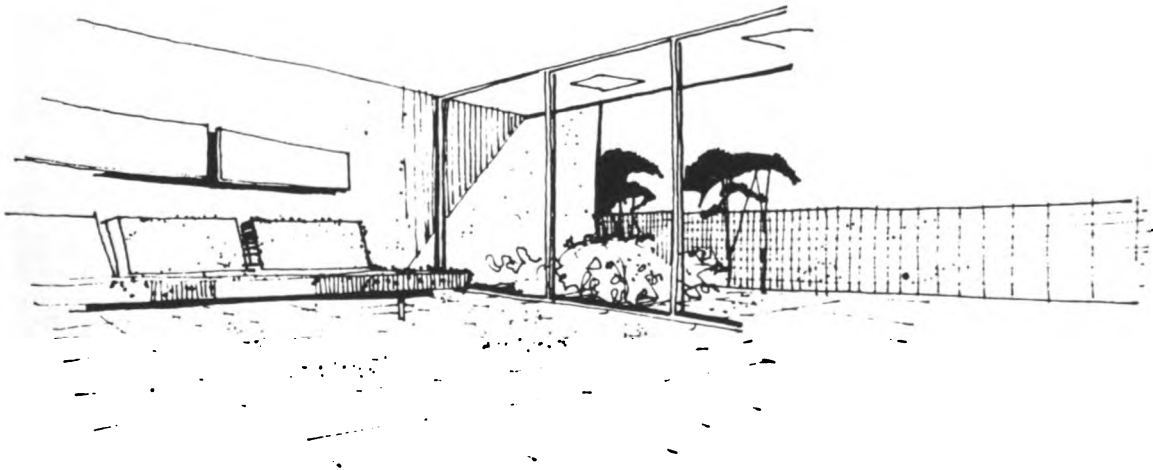
Residential interior design involves, among other things, the consideration of practical use, and good proportion and taste, but here again the tract house has its own special problems. Because of cost and site limitations, every effort must be made to increase the apparent size of rooms and to avoid the box-like, confined interior appearance of so many builders' houses today.



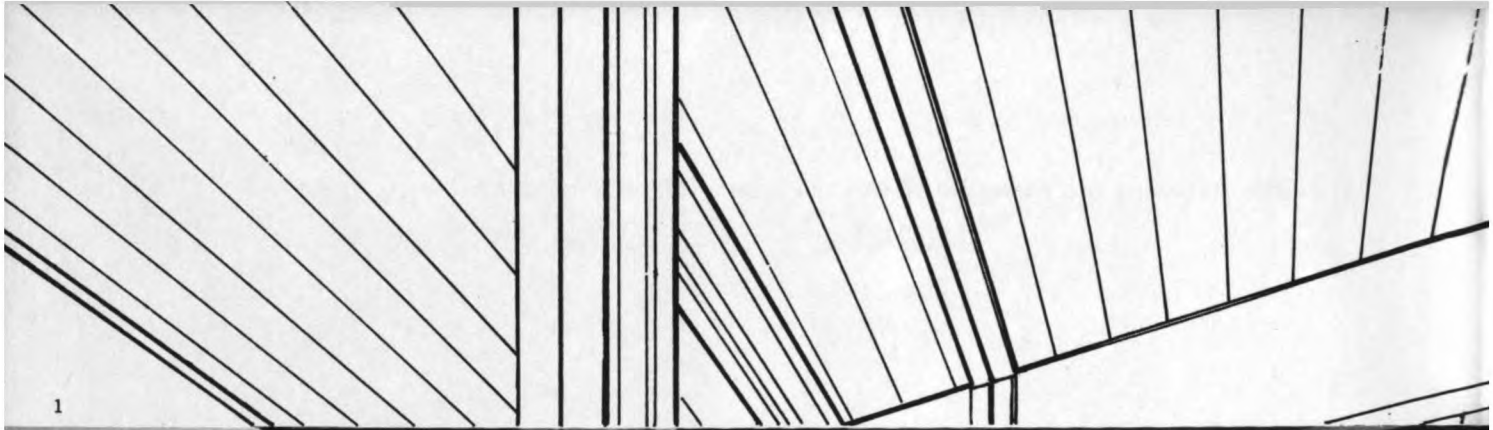
The following are examples of ways in which this may be done.



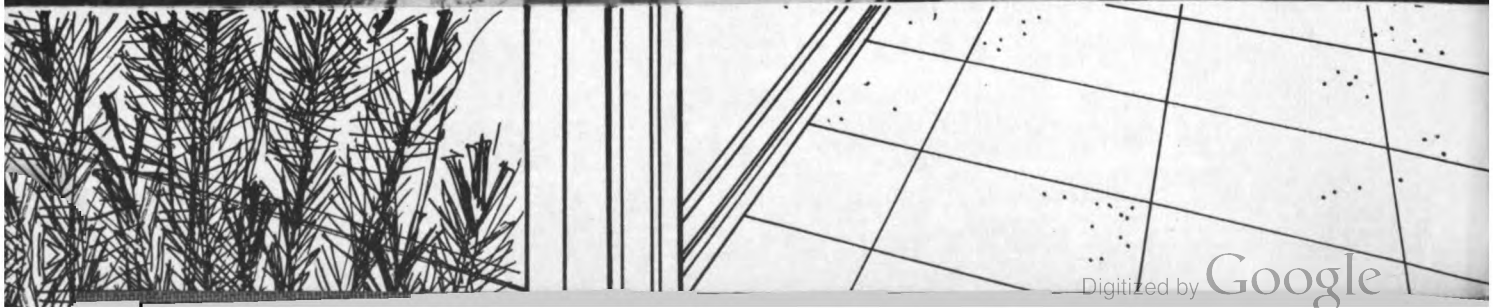
By stopping certain walls short of their intersection with other walls and ceilings, a visual impression is provided of the space beyond.



The use of full-height glass walls, combined with enclosing screens beyond the exterior line of the house, adds to the visual area (and the useful space as well). By carrying interior surface materials continuously through glass walls to the outside walls and soffits, the feeling of space is increased.



1



INDOOR-OUTDOOR LIVING

Although the first outline of this chapter isolated the living room as a space for separate discussion, it soon became apparent that the more efficient planning required by today's high costs of land and construction has resulted in a new concept of space relationship. With the varied living patterns which are possible, and assuming designs based on logic rather than prejudice, the living room no longer needs to be considered as an entity in itself. As in any planning, there are basic considerations as to the type of use.

- The parlor—which still has validity.
- The living space integral with, and possibly open to, the kitchen and dining area.
- The living alcove related to the family all-purpose room.
- The expanded multi-purpose living area which includes library, dining, food preparation, and other family uses all in one space.

In any case, these rooms can, and should, be more than four walls. The design problem is one of defining space relationships, one to another, and to the outdoors. The kindred functions between indoor and outdoor living are important as good planning criteria. All good solutions will naturally consider required storage, flexibility, lighting, acoustics, family activities, and the logical use of materials.

When building a custom house, a living pattern can be established, and the house designed around this known program. Fortunately, most merchant-built communities include enough variety of plans to fulfill most living patterns within their price range. If not, they certainly should.



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To discuss living areas properly, it will be necessary to overlap the following section on kitchens and dining. No part of the house is truly separated from another.

In recent years a new room has been added to the merchant-built house. It has many names; the family room, the all-purpose room, the den-guest room, and even "the room without a name".

Whether the house has two, three, or four bedrooms, the new room is considered to be a sales requirement. This room, or space, is used for television, library, sewing, home office, hobbies, children's play, dining and living; either singularly or collectively. Obviously, such an addition effects the conventional concept of living spaces.

THE PARLOR

Even though one might hesitate to admit it, there are two distinct types of living, the cluttered and the neat. These two characteristics are partially responsible for both the advent of the family room and the return of the parlor.

The parlor should be a cul-de-sac space. Without through circulation, this room can become comparatively easy to maintain in readiness for the unexpected guest, the bridge club, the preacher, and quiet family conversation. It may be used to house books and provide an intimate "retreat". This space can, and should, relate to the garden. Today many people with children consider such space a "must"

The parlor provides the possibility of a somewhat more formal life. Properly planned, it can still relate to other areas for required expansion for entertaining.



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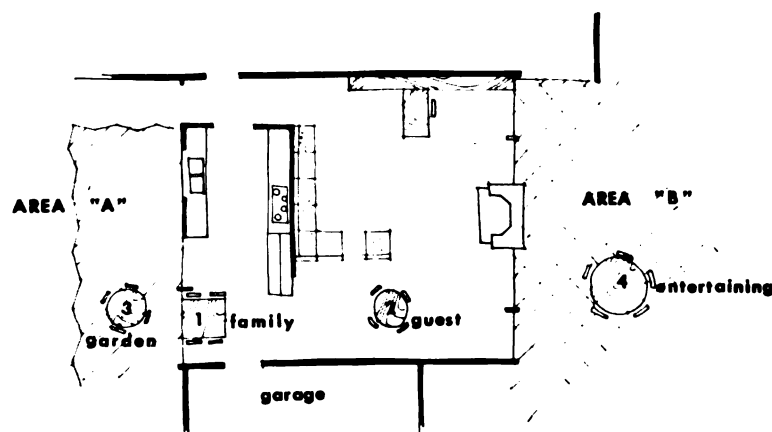
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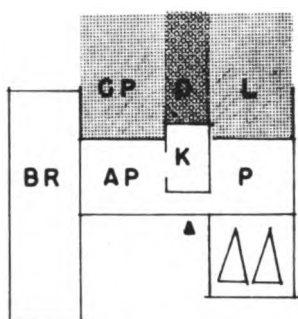
LIVING-DINING COMBINATION

Cost considerations have necessitated the multi-use of most areas in the home as well as the adjacent outdoor spaces.

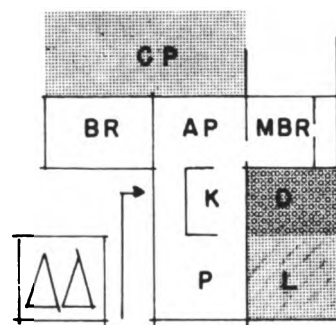


This plan works well if a dual use of space is acceptable. Area "A" provides an outdoor play area for young children under the direct supervision of the mother performing her kitchen chores. It also provides an outdoor dining area adjacent to, and easily served from the kitchen. Area "B" functions as an extension of the interior living space, and with proper use of glass and night lighting, truly enlarges what otherwise might be considered a small living area. Even in this compact space there are four places to eat, each providing a distinctly different kind of dining experience.

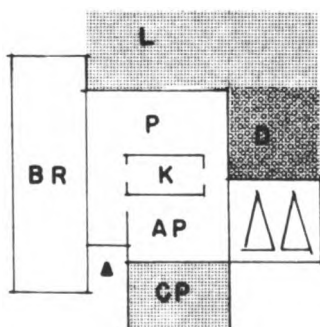
The living space houses the books (library), the desk (home office), the guest dining table (dining room), the dining table which doubles for cards and games (recreation room), and the conversational furniture grouping (den). It is true that a larger budget would allow more floor area, which in turn would permit a scheme to provide greater privacy for each of these functions. Assuming equally efficient planning, the degree of visual and sound privacy is therefor in direct ratio to the budget. It is important to point out that no family function of living need be eliminated because of limited floor area if one is willing to accept the premise of multi-use.



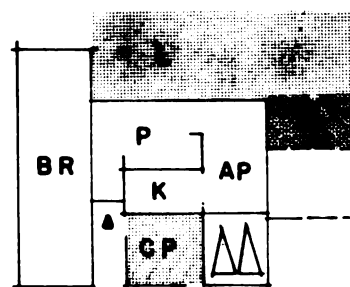
A



B



C



D

KEY

- AP ■ ALL PURPOSE FAMILY ROOM
- CP ■ CHILD'S PLAY
- BR ■ BEDROOMS
- P ■ PARLOR
- L ■ OUTSIDE LIVING
- K ■ KITCHEN
- D ■ OUTSIDE DINING

FAMILY ROOM WITH LIVING ALCOVE

When the budget permits inclusion of additional floor space, the family room, or all-purpose room, becomes increasingly desirable. It has several logical locations and, as in all interior living spaces, every effort must be made to relate it to the adjacent yard areas for full use of the property. Each of the schemes on the opposite page has certain advantages and, in some cases, certain compromises.

- Schemes A and B use the all-purpose room as circulation to the bedrooms. This cuts normal hall circulation to a minimum, but reduces privacy in the all-purpose room.
- Schemes A and B place the all-purpose room adjacent to the bedrooms and thus provide easier access for child's play and easier supervision of the children. However, they locate "noisy" activities close to the "quiet" bedroom area.
- Schemes C and D put the family room in a cul-de-sac location and provide better sound zoning within the house, but the children must pass through another part of the house to use the family room.
- Scheme B provides a good sound separation between adult and children's sleeping areas, but makes it more difficult to care for infants.
- Schemes A and B provide the most ideal relation between food preparation and outdoor dining, whereas schemes C and D require circulation through another space.
- All schemes permit the use of the family room for guest dining.
- Scheme D provides the easiest expansion of the living space to include the all-purpose room for large parties or gatherings.
- Each of the schemes considers the relation of interior and exterior spaces, but scheme B has the best zoning of exterior space.
- Schemes A, B, and C provide the "parlor" or cul-de-sac living room, but scheme D forces circulation through either the living room or kitchen to reach the all-purpose room.



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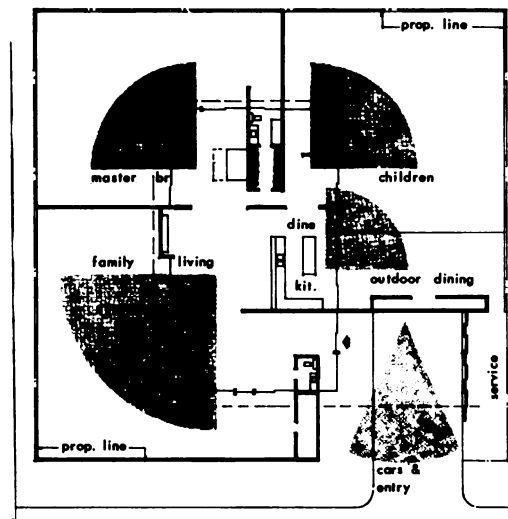


EXPANDED MULTI-USE LIVING AREA

All the plans discussed so far have been based essentially on the "central hall plan" concept.

Since the merchant-built house is usually servantless, the maximum use must be made, not only of every square foot of interior space, but of the site as well. One might consider that each house contains two basic zones: the sleeping, dressing, and bath areas, and all the other activities which can make multi-use of the remaining space.

This plan considers the property lines as the "walls" of the house.



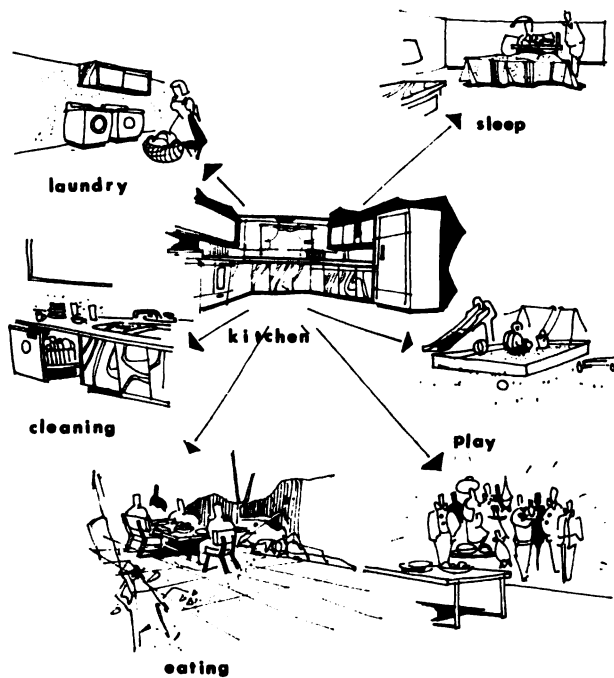
Each space expands to the property line, leaving no unused side, front, rear yards, nor halls within the house. With the exception of the sleeping areas, the remaining enclosed house and yard areas become the "all-purpose room". For visual and sound privacy, screens may be provided to fit the living patterns of any family. Even the adult sleeping area may be opened, if desired, to provide an expansion of the other living spaces.

Our changing living patterns, as well as our changing economy, are functions of planning. The fact that we have always lived in separate and isolated cubicles does not mean that, by intelligent and clear thinking, we cannot envision living space which provides a better and more complete life. It is completely unreasonable to let past planning prejudices limit the possibilities of this full life.



KITCHENS AND DINING

For any of the various family living patterns in the servantless house, the kitchen is the space most frequently used. It has been rightfully said that "the kitchen is the heart of the home". While admitting that bath and sleeping facilities are necessary, it is conceivable that all other family activities could be provided for in one room. The "Expanded Multi-use Living Area", illustrated and discussed in the previous section, exemplifies this concept.



The food preparation area relates to:

- All interior and garden dining areas, to provide easy service.
- The living room, for participation in family social life.
- Children's play area, for better supervision.
- Bedrooms for snacks or easy service in case of illness.
- Car storage area, for convenient deliveries.
- Laundry, for easy performance of household chores.

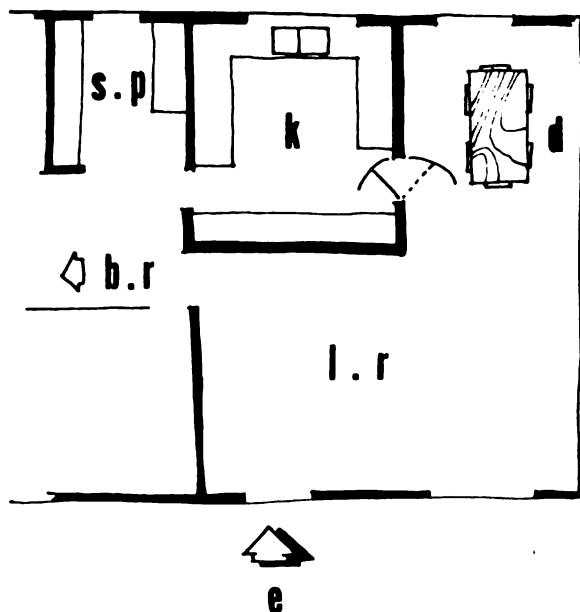
In planning the kitchen, one or more of these relationships is often neglected. None is unimportant.

Too often, when planning the house, it is deemed adequate to provide one good dining area. Meals require preparation, service, and clean-up three times each day. This repetition of an important family activity surely deserves careful thought, and it seems obvious that more than one kind of environment and dining experience should be considered. In the well-conceived house, it surely is.



TYPES OF KITCHEN-DINING RELATIONSHIP

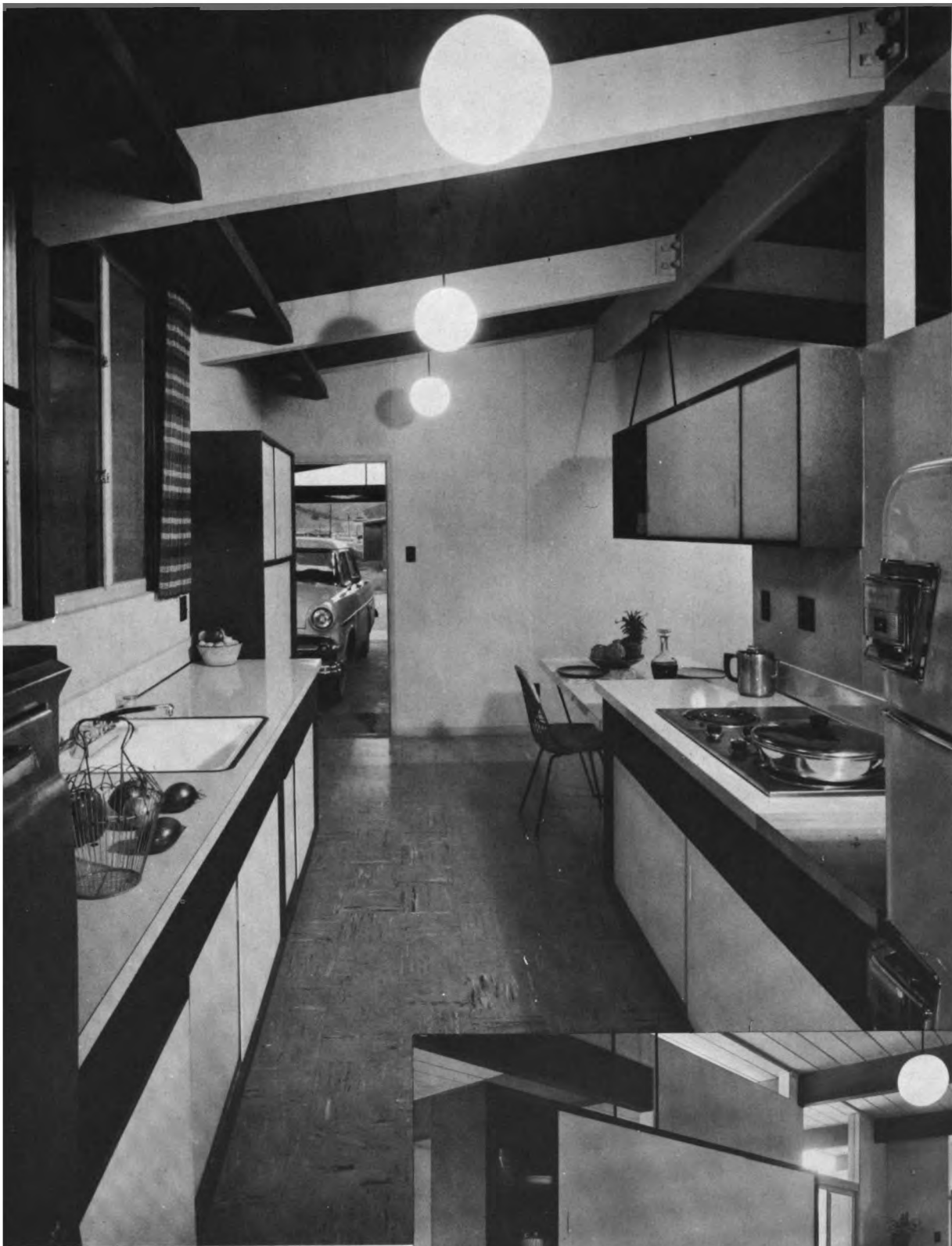
Much discussion has taken place concerning the "open" versus the "closed" kitchen, and the multitude of possible variations in between. In the servantless house, the so-called closed conventional kitchen ignores many functions of living that can provide an easier and more pleasant life. First let us review the conventional (and too often typical) kitchen.



This plan does little more than barely fulfill the function of preparing food. Service to the dining alcove is through a narrow double-acting door. In spite of the arguments concerning the problem of cooking odors in the open kitchen, this so-called "closed" kitchen receives the help of the double-acting door in "fanning" odors into the living areas. This fanning of cooking odors at irregular intervals can make them not only noticeable, but actually more pronounced.

This kitchen serves the yard only through the laundry-service porch, and the supervision of children's play, through the small window, is inadequate at best.

The person preparing the meal, or cleaning up after the meal, is isolated from all other family or guest activities.

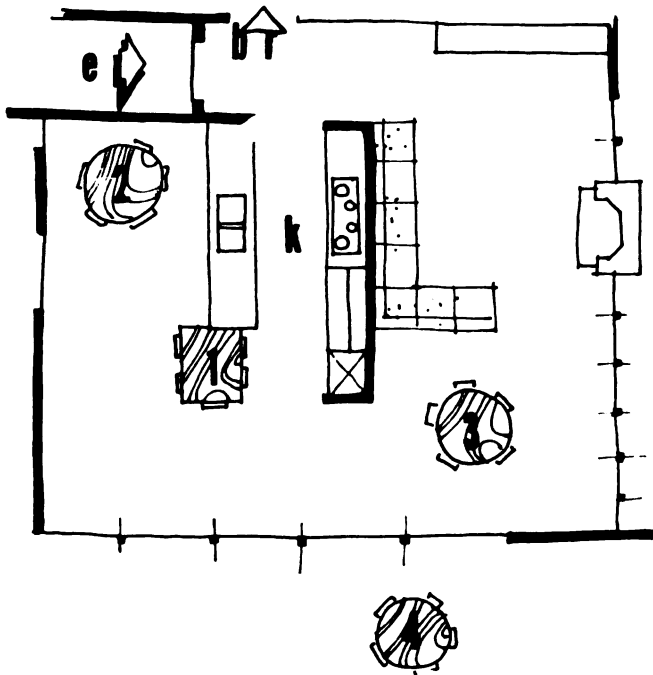


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Now let us see how a kitchen that is open to the living area works. It becomes the center of family activities.

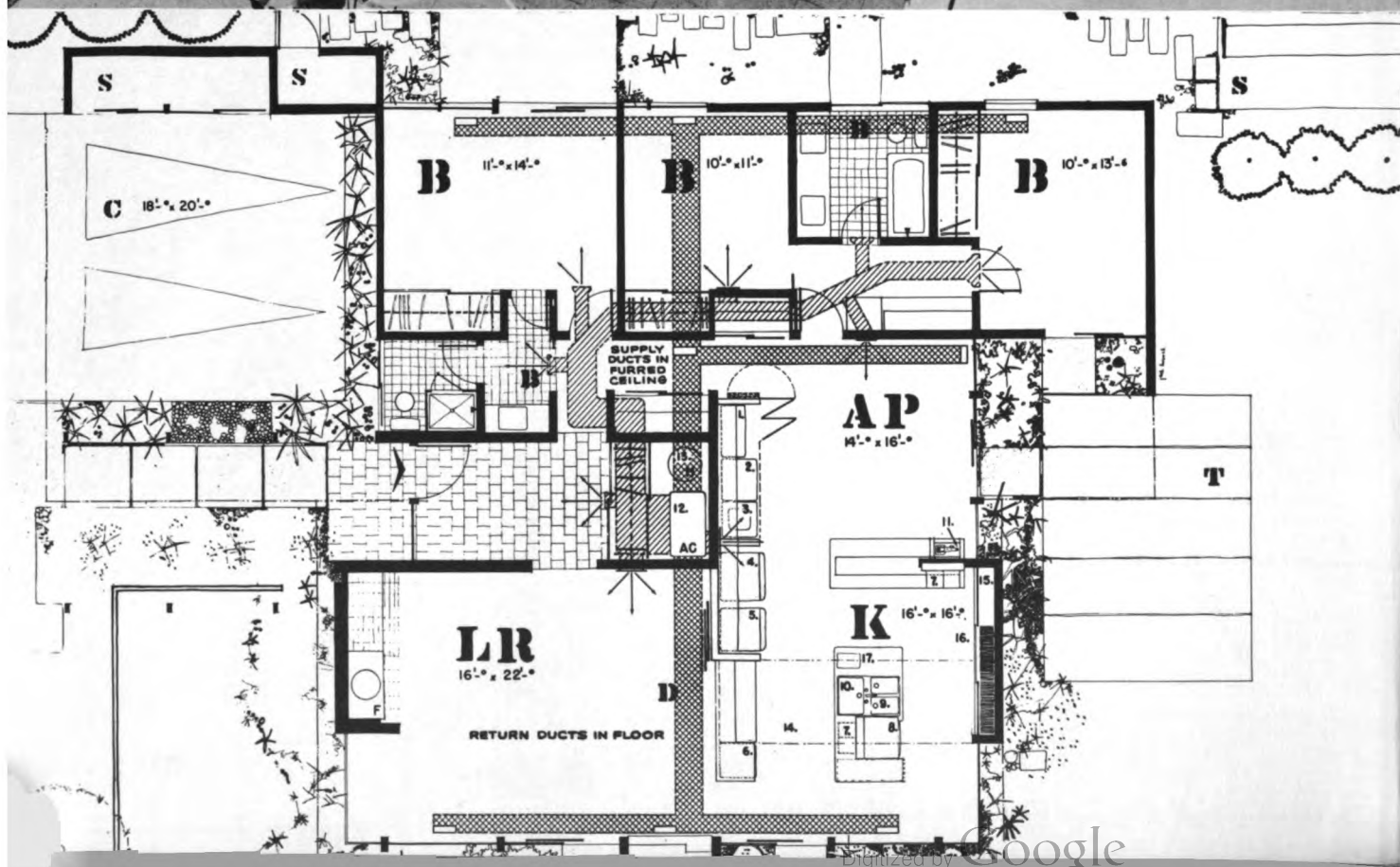
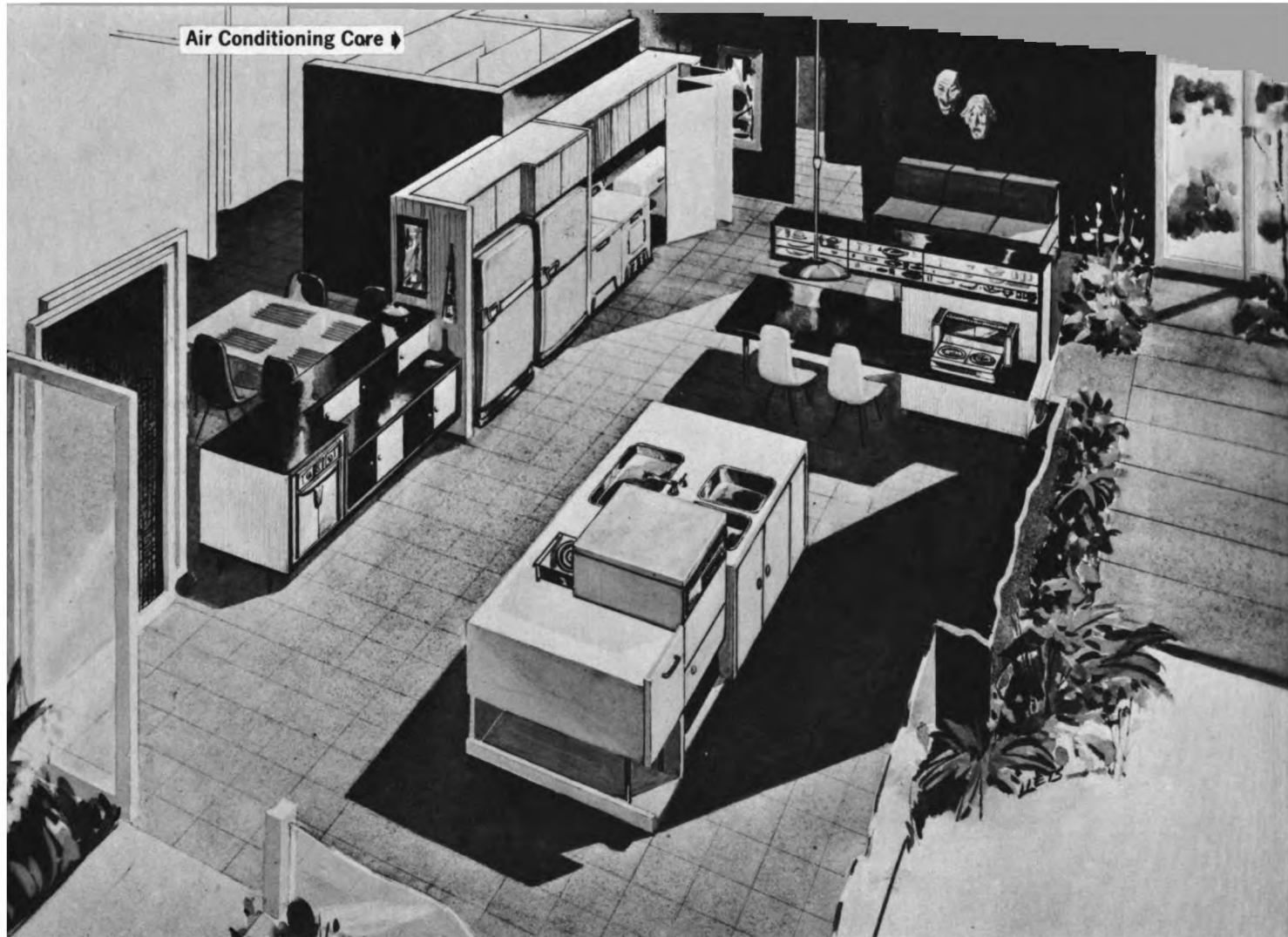


This kitchen serves four different places to eat and does it with a minimum of steps.

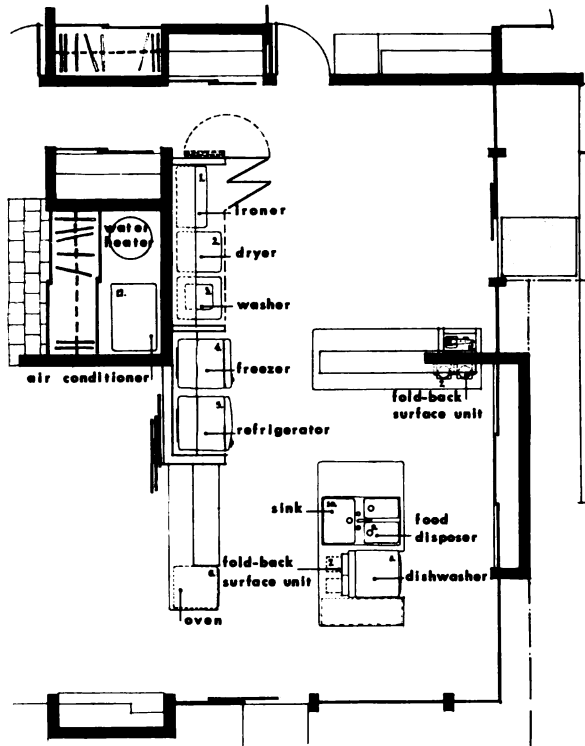
- Breakfast table; a place for children's snacks, coffee, menu desk, and informal family meals.
- Alternate informal family or guest dining.
- More formal guest dining; doubles for game or card table.
- Garden dining; area doubles for young children's play under direct supervision from both kitchen and living areas.

This kitchen has immediate access to the front door, and is only a step across the entry to the bedroom wing of the house. When entertaining, it can act as a serving bar with ice, glasses, and snack preparation facilities immediately accessible.

Air Conditioning Core



Many variations in the arrangement of the kitchen are possible, and in every case the total house plan must be considered. Some function of almost every space in the house has a relationship to the kitchen.



This scheme again provides several variations of dining experience.

The island, in this case, is the core of the kitchen. One side of the island relates to the functions of food preparation and the other side to the cleaning up process.

In this case the laundry works in relation to the kitchen and all-purpose room. It is still but a step from the bedroom wing where the soiled linens originate and are ultimately stored.

The dishwasher is raised to the same level as the built-in oven, making it unnecessary to bend over with every item of dirty dinnerware. Ultimately, dishwashers may well be designed to store the tableware between uses. It seems unnecessary to be required to remove the clean dinnerware from the dishwasher to a second place of storage only to have to replace it later at the table.



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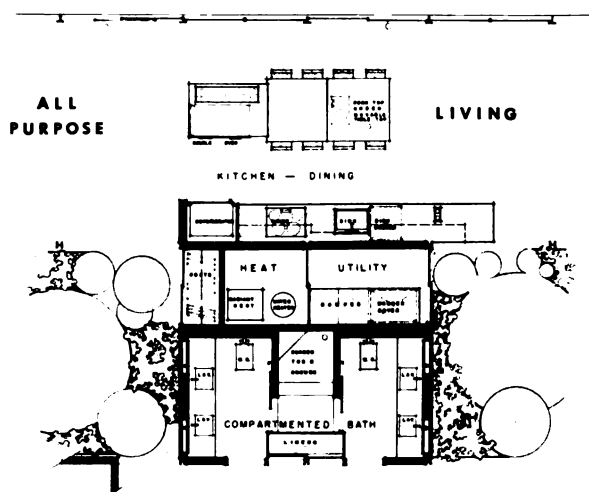
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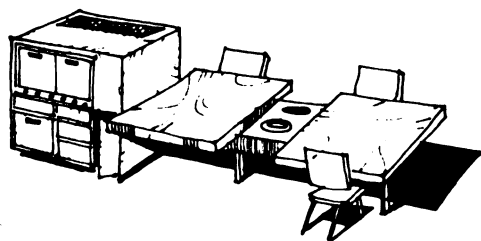
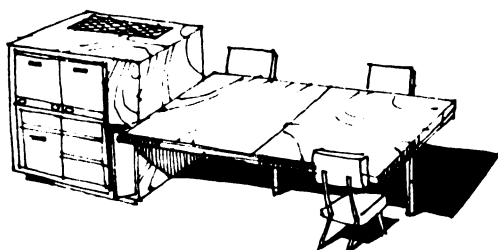
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Still another type of plan, in which there is no real definition between the kitchen and other living spaces, is illustrated below. The oven cabinet is the only baffle to the more formal living area.



The kitchen, bath, and laundry work from one utility core.



All the usual appliances work "in a line" along one wall. To serve the kitchen dining table it is only necessary to turn and take one step.

The table has a two-burner electric range set in the top. One half of the top slides closed when the range is not in use. When the top is closed, a trip switch cuts the electric circuit, thus eliminating the danger of leaving the heat on.



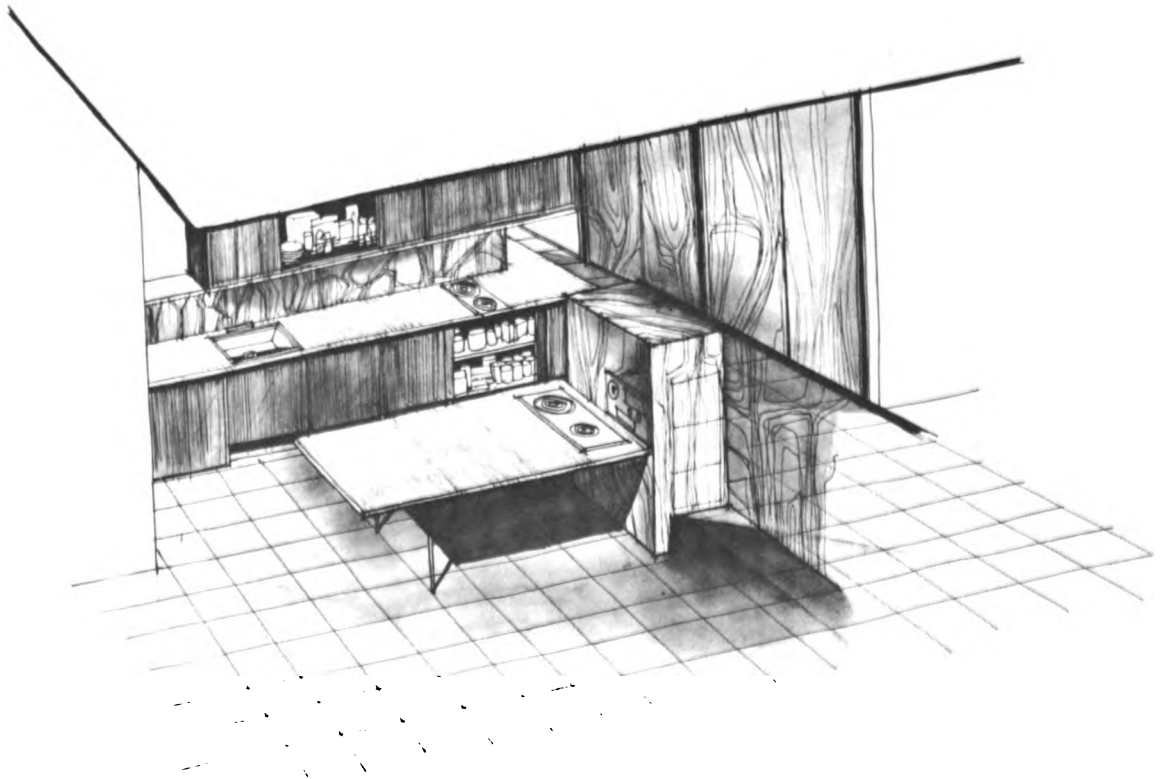
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This type of planning reduces to a minimum the work involved in the continual "three-a-day" chore. Even if one does not cook at the table, it insures hot meals with obvious ease of serving.

Now that built-in appliances are available, the kitchen can be one of the comfortable and attractive areas within any house. This concept of the kitchen as a pleasant living area has made it possible to plan more functionally. It surely makes the management of the home easier for all involved.



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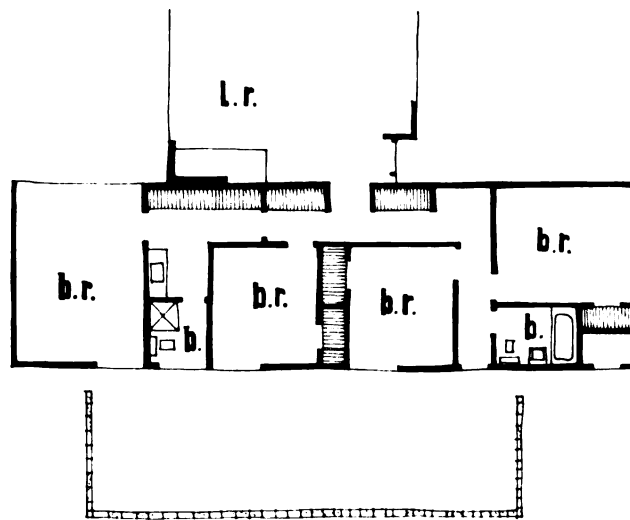
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BEDROOMS

The size (and income) of the average American family has increased in recent years to a point where three bedrooms are considered essential in all but the smallest home, and today many tract houses contain a fourth bedroom arranged to provide alternate use as a den or guest room.

It often makes economic sense to the builder to provide this additional bedroom, since the added floor space usually costs less than the difference allowed in the appraisal which, in turn, determines the increased sales price. Experience has shown that the average buyer will nearly always select a house with an extra bedroom when the difference in his monthly loan payments is but a few dollars.



A number of factors must be considered in the design of the bedroom areas in the builder's house. Although rooms must be of adequate size to accommodate beds and other furniture, proper arrangement of wall spaces and openings is of even greater importance.

Privacy, both from the standpoint of sight and sound, is a particular requirement of bedrooms. This involves adequate separation, especially of children's rooms, from entertaining areas, both indoors and outdoors. The noise of passing traffic and visibility from the street must also be considered, while in tracts of small lots, the relation of bedroom openings in adjoining houses requires careful planning. The insulation of bedrooms from adjacent room noises can often be improved by planning the wardrobes so that hanging clothes act as sound absorbers.

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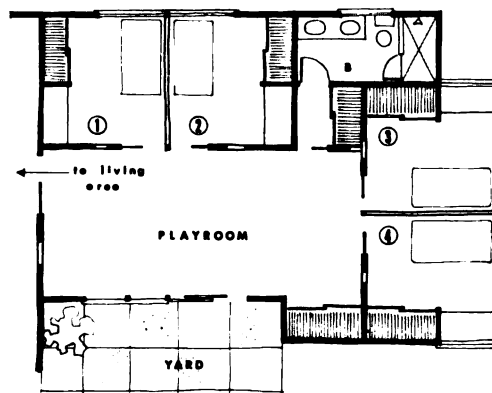
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High strip windows provide a degree of visual privacy, while furnishing added wall space below the sill, but their use often results in an uncomfortable sensation of confinement. A better solution is to open the rooms as fully as possible to an enclosed garden which provides not only complete privacy but a feeling of visual expansion.

This integration of bedrooms with enclosed gardens, or play yards, increases their usefulness, particularly in the case of children's bedrooms, which may be used for day-time play activity in inclement weather.



In the unspecialized builder's house, bedroom play arrangements are limited, but alternate plans may be provided to divide a pair of rooms by a folding or sliding partition, which when open, allows for combined use. In larger houses a children's wing may be planned, with minimum spaces opening into a common play room.



Another determining factor in the location and orientation of bedrooms is the necessity of avoiding extremes of heat and cold, and the desirability of cross ventilation. One further point is the need for privacy in dressing and bathing for persons using a bedroom. A dressing area in connection with the master bedroom and bath helps to accomplish this and, at the same time, increases the bedroom wall space through the elimination of closet openings within the room.

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BATHS

Today's home buyers want not only larger and more luxurious bath facilities but, even in the smaller houses, they require at least one and a half or two baths.

With whatever bathroom arrangements are planned, the aim is to provide both privacy and convenience for the varied and often simultaneous uses of increasingly large families. The usual method consists of separating the bath facilities of children and guests from the parents' master bath, but consideration must be given to such additional uses as children's bath access from their outdoor play areas; the relation of entertainment areas to guest lavatory; the separation of facilities for children of the opposite sexes; and the provision of kitchen toilet facilities, which in larger homes may be for the use of part time or full time servants, even though less commonly required than in the past.

Clearly, in the average tract house these varied requirements cannot be fully met, but efforts must be made to solve as many of them as possible within budget and space restrictions. The methods used involve bath location and access, interior compartmentation and the use of dual fixtures.

With a restricted number of fixtures, maximum use can be achieved by locating one bath opening directly off the master bedroom, and the other convenient to the remaining bedrooms and, at the same time, accessible from the kitchen and living areas.





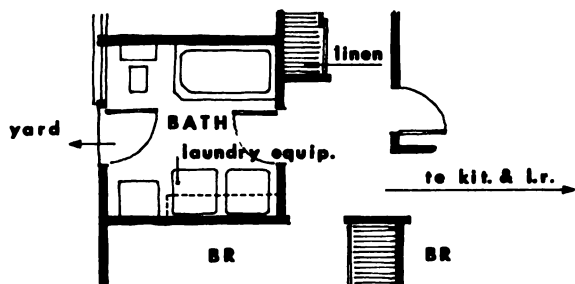
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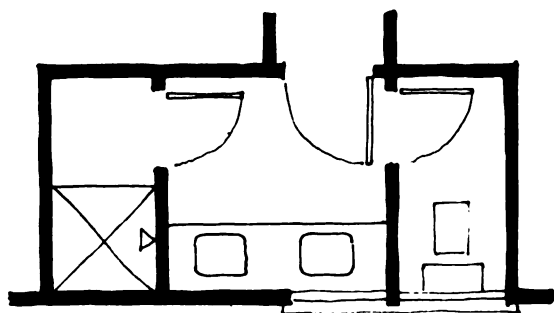


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If, in addition, this "second" bath can be made to open into a play yard, a so-called "mud-room" is provided which enables small children to remove dirty clothing and wash before entering the house. Properly located, it serves as a lavatory for guests in outdoor entertaining areas.



By the use of separate water closet compartment and dual lavatories, a further step is made toward solving the problems of multiple use.

With the possible exception of the bedrooms, the bath is the one room in the average tract house which is most likely to be squeezed down to the minimum size which will accommodate its standard fixtures. Consideration is seldom given to the secondary activities of relaxation and exercise. If these uses are to be properly provided for, more and better arranged space must be allotted, the lack of which at present is a common buyer complaint. This space may, in addition, be visually increased by its integration with an enclosed garden.



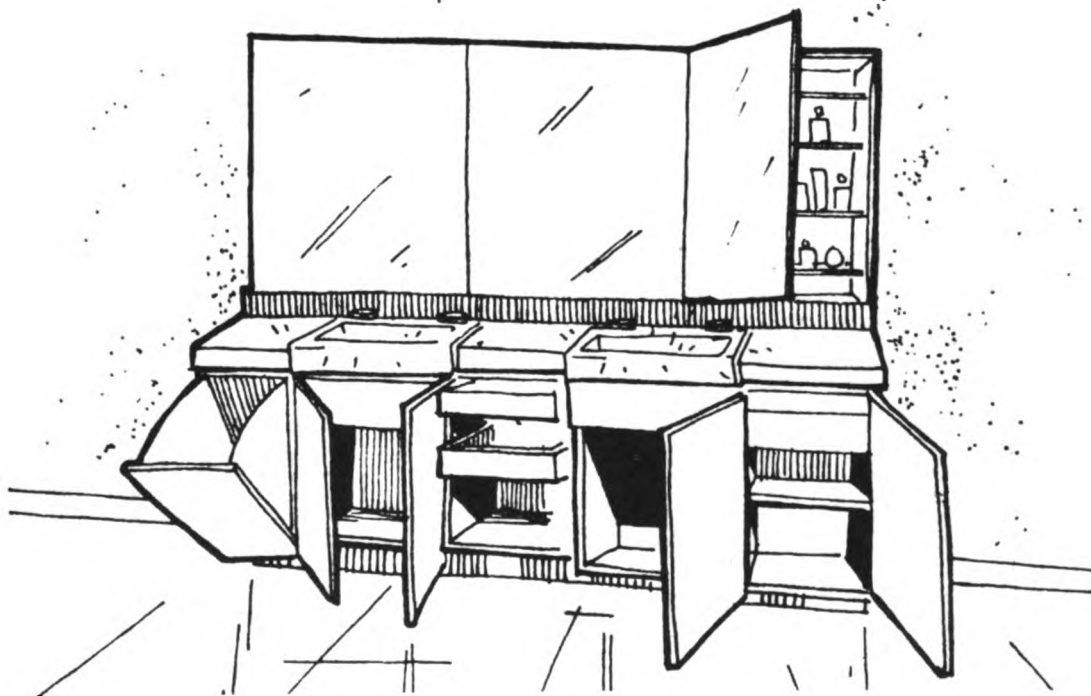
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The tendency in recent years has been to overcome the sterile effect of china fixtures and white tile walls through the use of cabinet work, textures, mirrors and color; much also has been done to improve the design of fixtures and fittings. Nevertheless a water closet is still a water closet, however streamlined and tinted, and certainly it should be possible to design and manufacture complete built-in all-purpose fixture combinations, fitted to the walls and floor, similar to those developed by modern ship and plane designers.



One further point which deserves attention is that of bath storage. This includes not only space for medicines and towels, but adequate counter top area as well.



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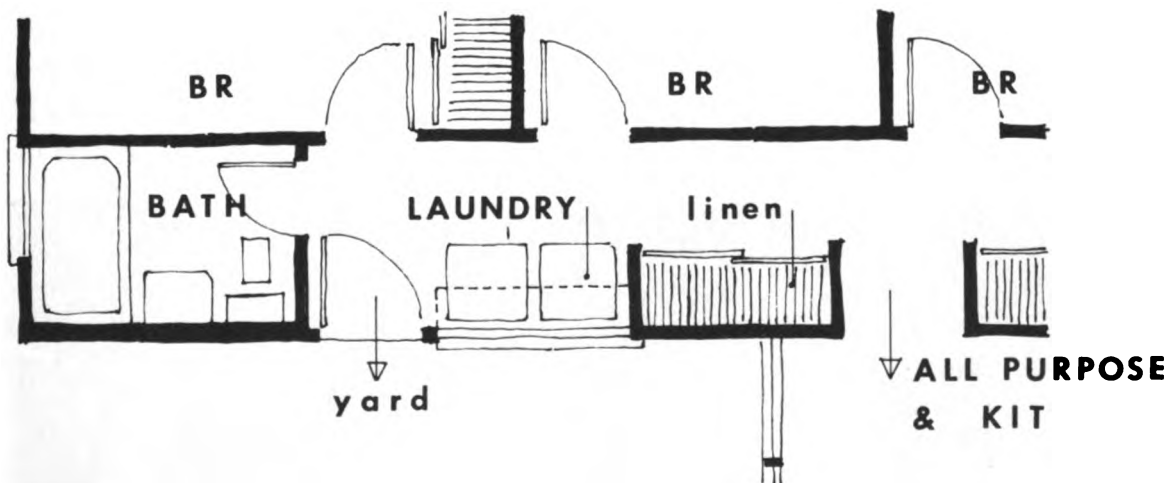
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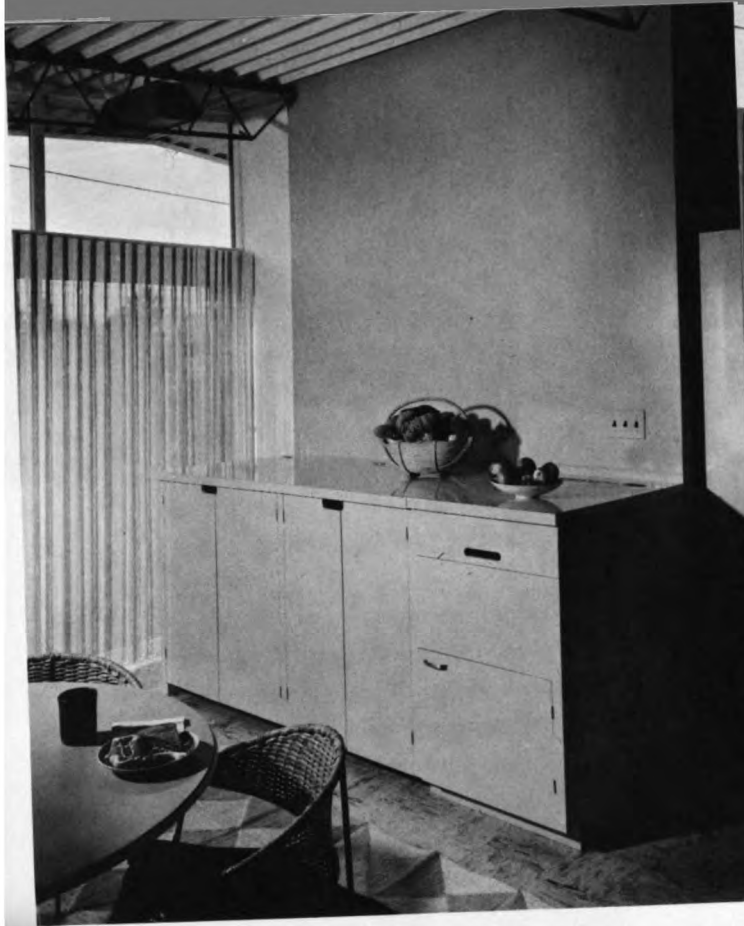
LAUNDRY, SERVICE AND UTILITY CORE

The continuous improvement in the efficiency and appearance of home laundry equipment has brought these appliances out of the basement and "back porch" into the center of the home's daily activities where they belong. Today's washers, dryers, and ironers have reduced the housewife's need for domestic help, while increasing the number of items which can be laundered at home. At the same time, not only is less space required for their installation, but the need for a drying yard has almost disappeared. These points are important to the merchant builder, since the cost of installed laundry equipment can be included in a "package" loan.

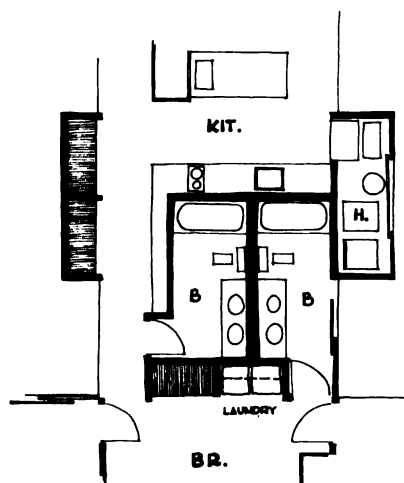
Logically the center of laundry activity (and the area from which its material originates), is in the bedroom area rather than in the usual kitchen-service porch location. If, at the same time, the laundry center can be located adjoining a bath opening to an outside play yard, the advantages of its use by children are apparent. Clothes, dirtied in play, can be left directly in a hamper, while clean clothing, towels, diapers, etc., are available at the point of greatest use.



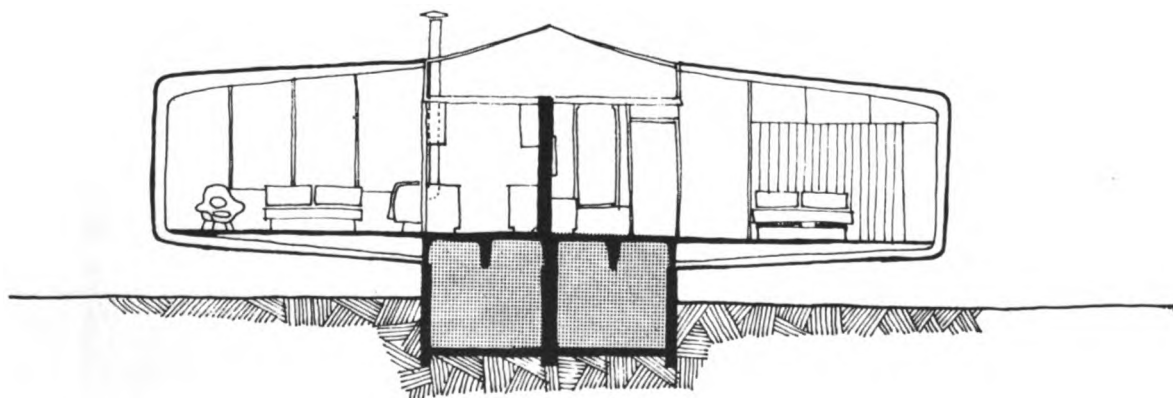
With the increasing tendency toward integration of food preparation, dining, and living centers through the use of the "open" kitchen, a laundry near the bedrooms and accessible to the exterior provides the facilities which formerly served many of the functions of the service porch; an area which is decreasing in importance since, in today's tracts, home deliveries, with the exception of milk, are fast disappearing. In addition, by removing the laundry from the kitchen area, its use can be suitably isolated and screened.



Designers continue to experiment with the idea of a so-called utility core to include as many of the necessary mechanical functions of the home as possible. In tract homes, the use of such a service core in a central location allows wide variation and easy expansion in the perimeter rooms, while cutting installation costs through its compact arrangement.



Today this is done by the compact location of a number of varied pieces of equipment, but it is possible to visualize the development of a complete packaged assembly, combining all necessary mechanical components in a manner sufficiently flexible for the builder's use.





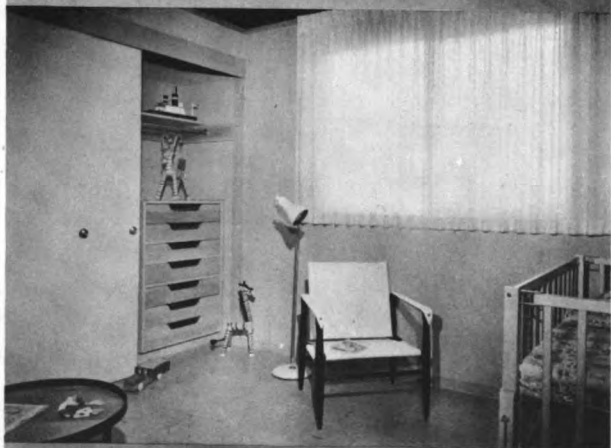
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STORAGE AND BUILT-INS

Most tract houses are built today without attics and basements, and the houses themselves are generally smaller and more compact. This has resulted in a lack of the space which was formerly used, however inefficiently, for all sorts of miscellaneous storage. While it is true that today's families are less settled and consequently accumulate less bulky material, it is also true that with a higher standard of living they own a great many items formerly considered luxuries. One of the chief complaints of home owners today is concerned with the lack of storage space. Their only recourse is to use the garage as a catch-all for articles of every sort.

The answer of course, is to provide adequate and efficient space for every storage requirement. Certainly some provision must be made to replace the lost basement and attic space through the addition of a storage room of proper size. And while it is obvious that the builder's house can never match the custom-designed house in providing specialized storage space, it can still be planned to furnish proper storage for the usual belongings of the average buyer.

A list (by no means complete) of these items would include the following: games and toys, books and records, tableware, utensils and appliances, cleaning materials, coats, linen and blankets, tools, luggage, canned goods, sewing materials, garden furniture, and sporting goods.



Each of these articles requires a special type of storage area and the livability of the builder's home depends to a great degree on how the problem is solved.

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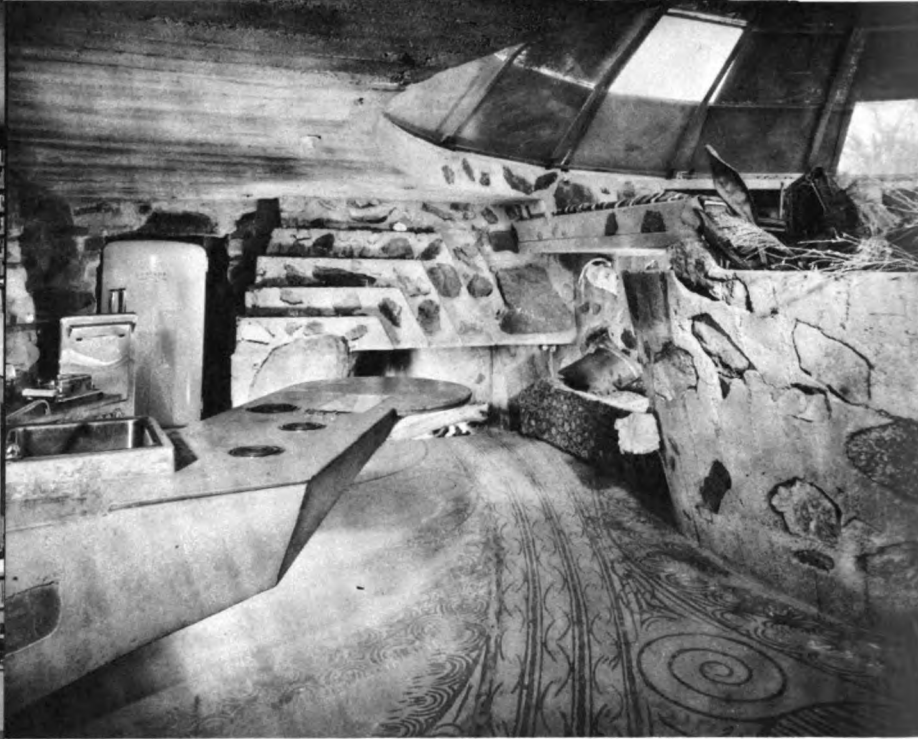
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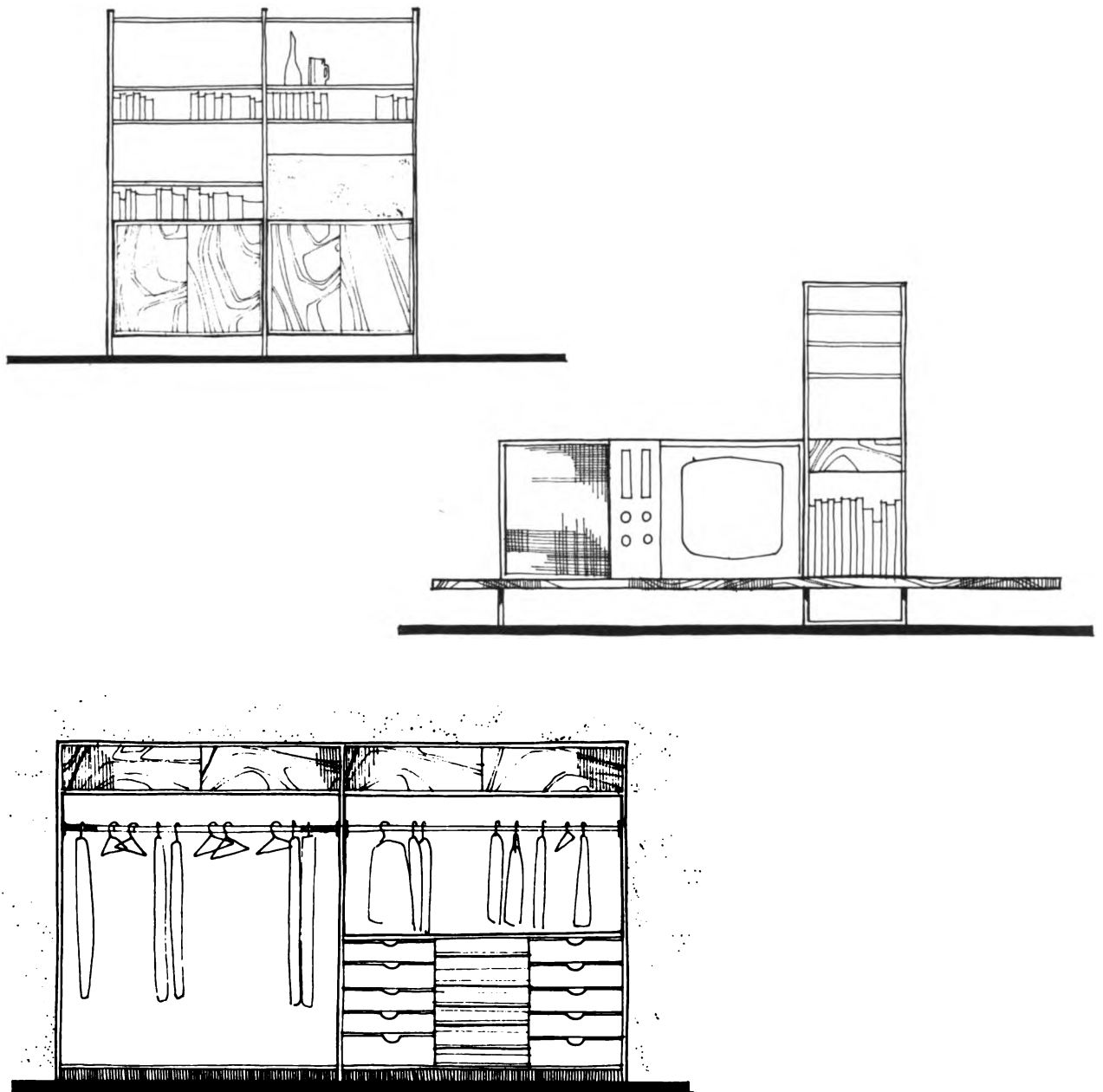
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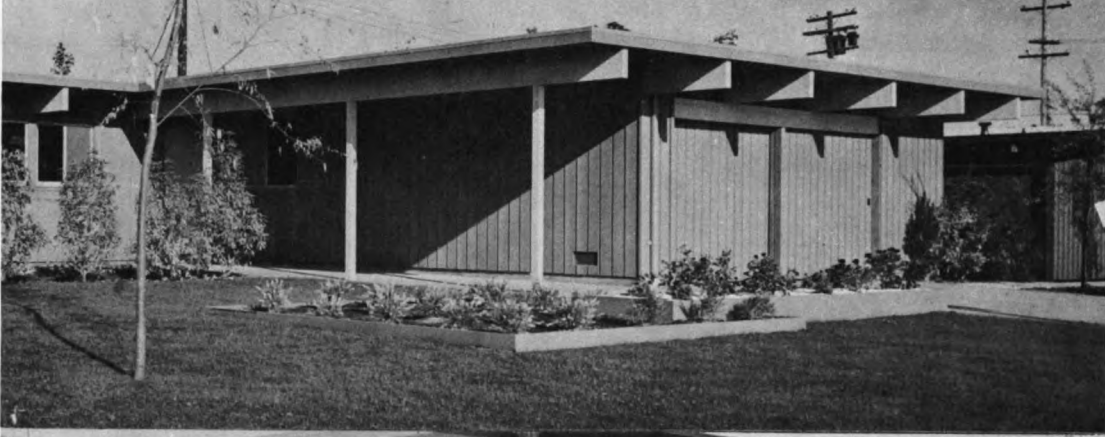
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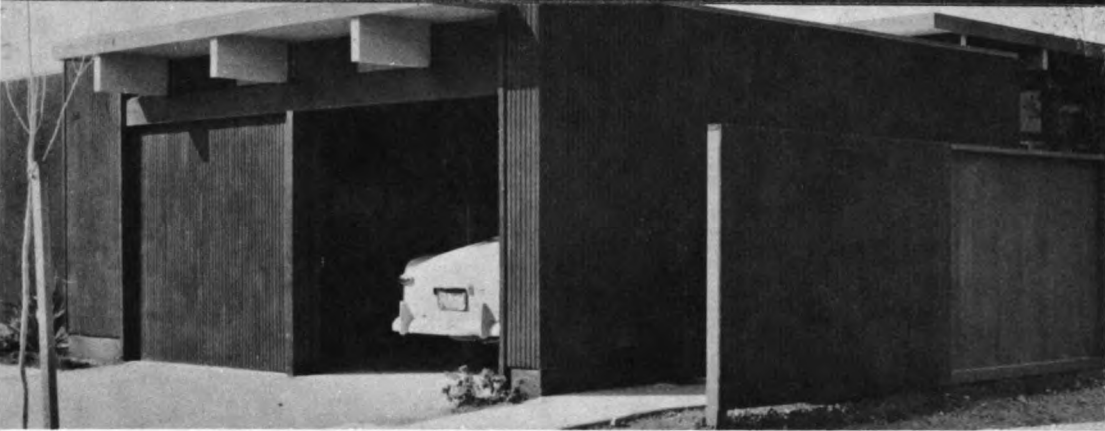
Many items such as television and hi-fi equipment, radios, music systems, and record players are being built into today's houses as a result of the popularity of these sources of home entertainment. Other built-in features include seating, desks, bookshelves, dressing tables, bars, etc.

Their particular advantage to the buyer of the builder's house, apart from enjoyment and use, is that the cost can usually be included in the sales price and paid for over the long term of the mortgage loan. Not only do well designed built-ins improve the interior appearance of the house, they relieve the home buyer of much of the initial cost of furnishing.

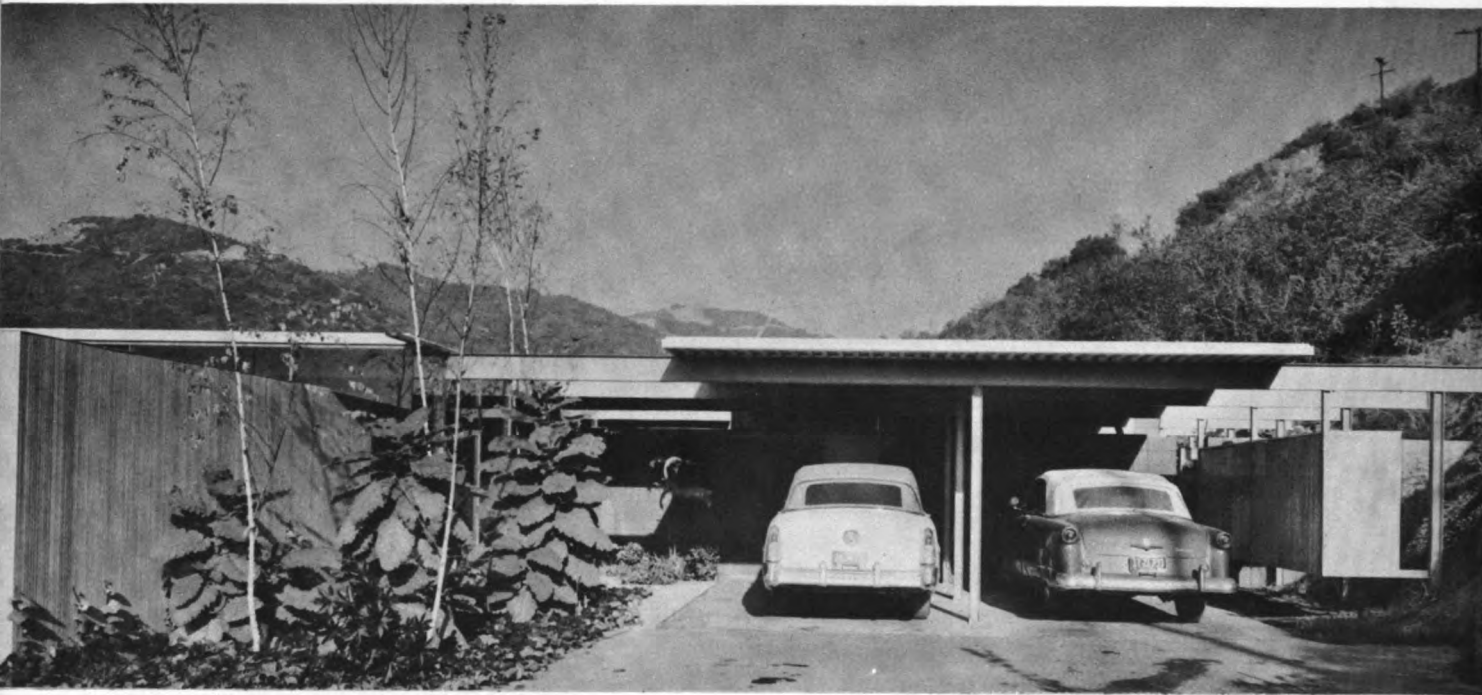
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CARPORTS AND GARAGES

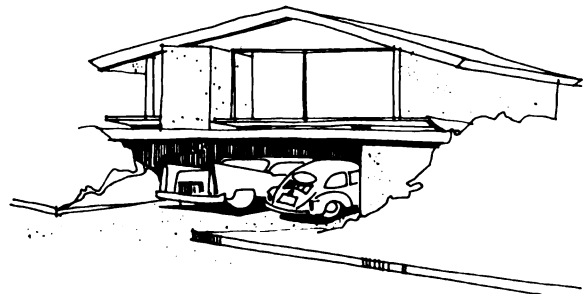
Few builder's houses are now designed in accordance with the former practice of locating a detached garage on the rear of the lot, since the practical advantages of a location in front are evident. These include shorter driveway length, easier garage access, and increased rear garden space.

In tracts of relatively small lots however, with closely spaced houses in which the garages are so located, the very size of the structure required (a size, incidentally, which is continually increasing) produces a depressingly monotonous visual effect. Furthermore their appearance is certainly not enhanced by the fact that most home owners can be expected to expose an untidy garage interior directly to the street.



Under such conditions the alternatives are few: the use of carports (not always practicable from the standpoint of weather protection); turning the entrance to the side; and the use of sliding doors to prevent exposure of more than half of the interior at one time.

Where the site plan provides lots of irregular shape and contours however, the car storage space may be fitted into the house pattern in a number of ways which will achieve both convenience and variety.





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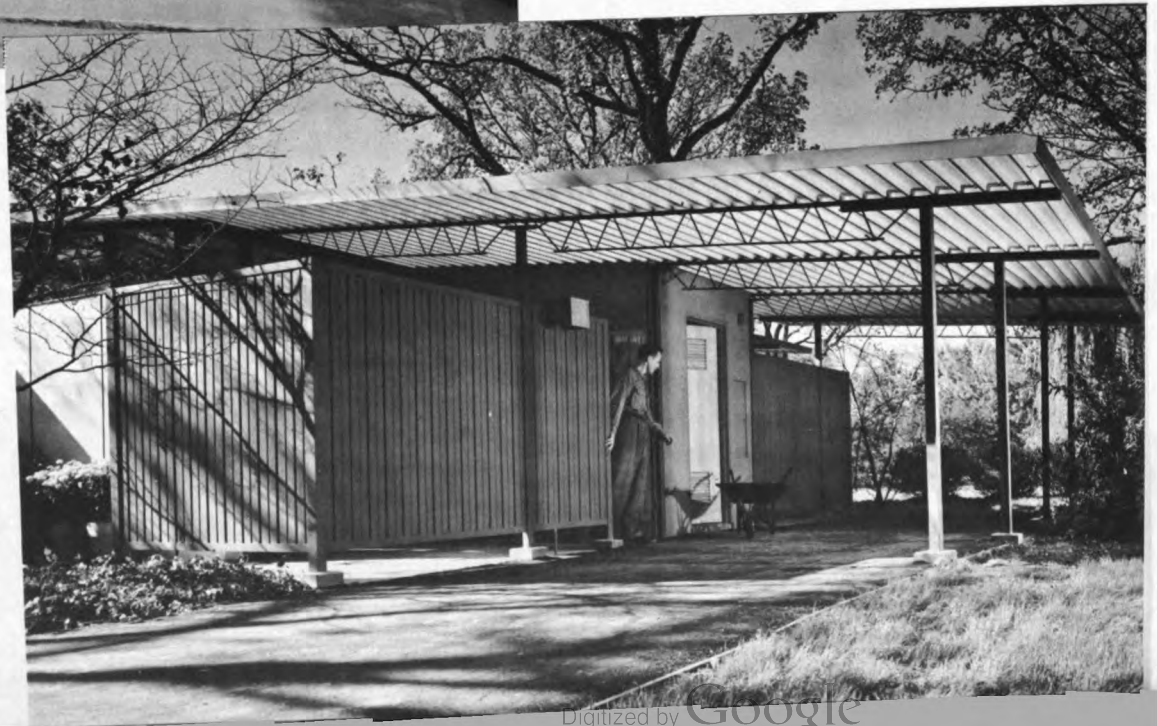
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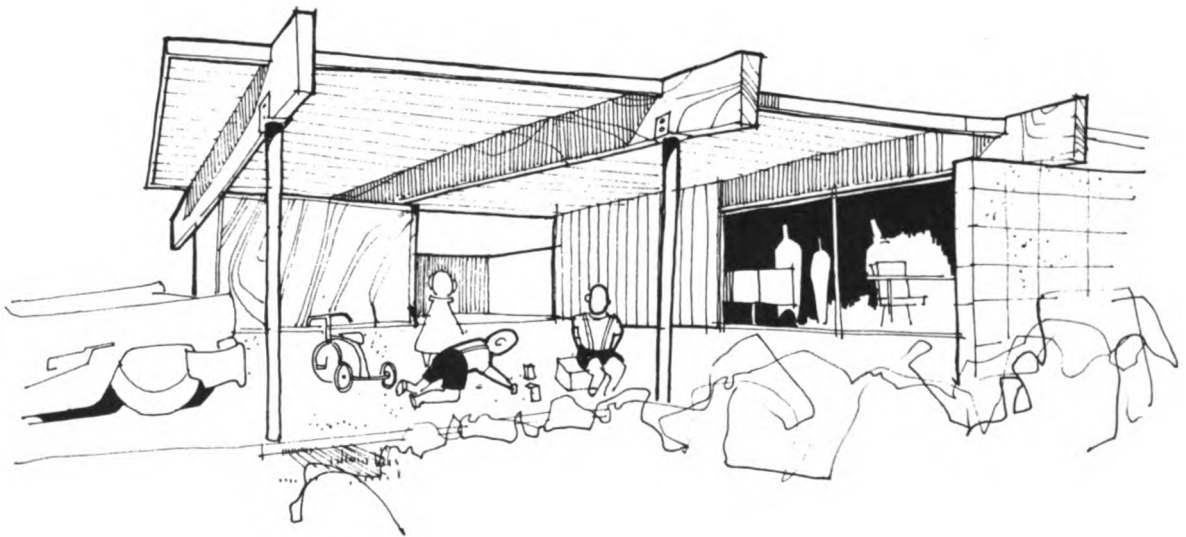


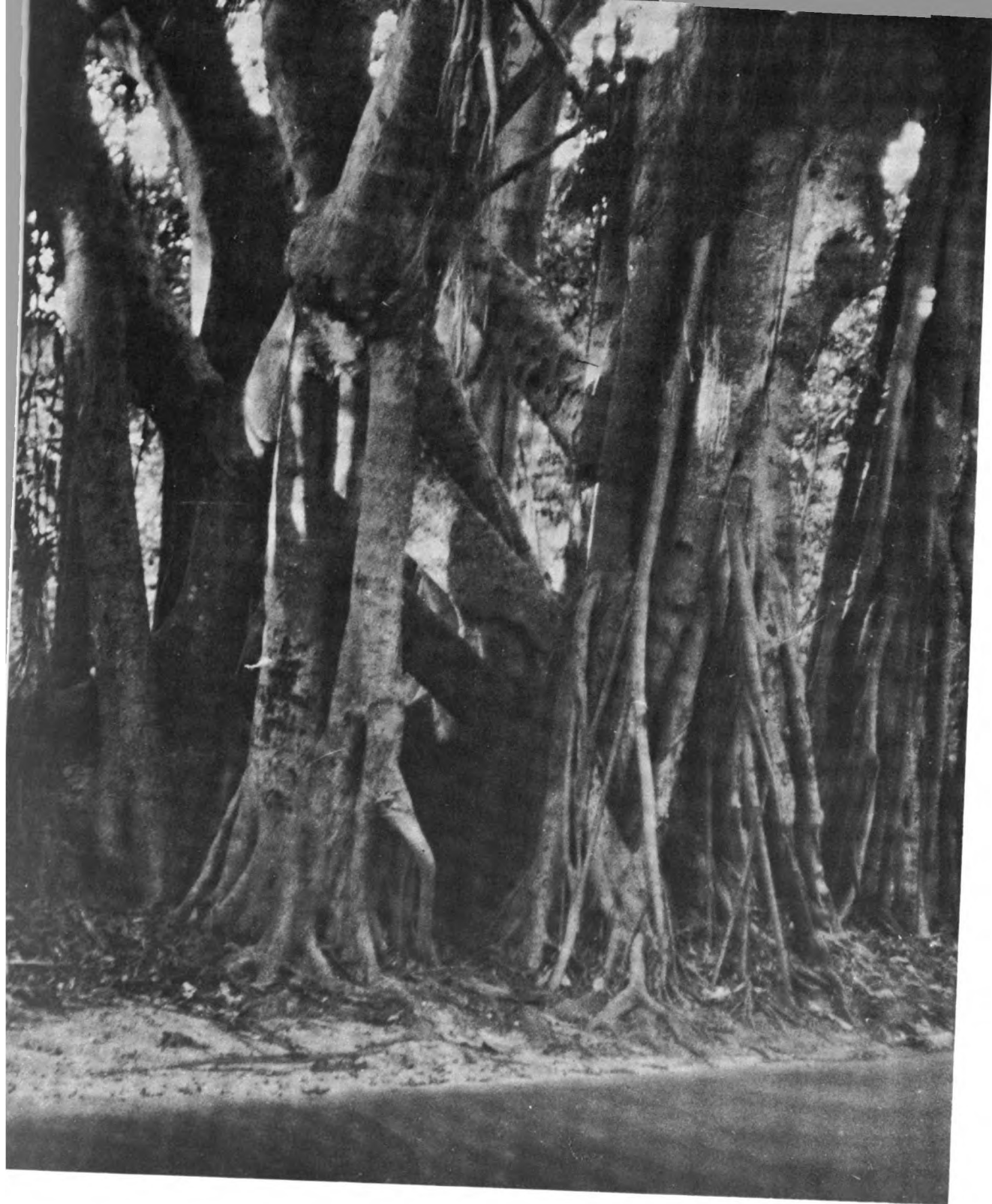
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The point to remember is that the original conception of the garage as a sort of glorified stable converted to the use of the automobile, fails completely to satisfy today's living conditions. Private car transportation is a major factor in the pattern of our contemporary life. If we consider that in many American communities today, people rarely enter or leave their homes on foot, the importance of well-planned facilities for the car's use and storage become obvious.

Ideally, the garage should solve the problem of storing a large, frequently used, mobile piece of machinery in such a manner as to protect it from the elements. But in the tract house, the area required for two-car storage takes up twenty to thirty percent of the total house footage. It becomes a practical necessity therefore, to find other possible use for this space.

In some cases, by relatively inexpensive expansion, space can be provided for a shop or hobbies in an enclosed garage while carports can, by proper planning, provide dual use as paved, sheltered play areas or porches.





Chapter V

THE STRUCTURE

Nature accepts structure as a tool to provide good esthetic experiences.



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MATERIALS AND METHODS

Houses, if they are to perform their basic function of protecting their inhabitants from the elements, must be constructed of suitable materials properly supported by a stable structural frame. This skeleton has varied widely at different times and places, depending on the availability of materials and the skill and technical advancement of the builders.

In most parts of the United States, timber products and carpentry labor have always been readily available, and the wood frame house, however diversified in style, has for many years been by far the most widely accepted structural type.

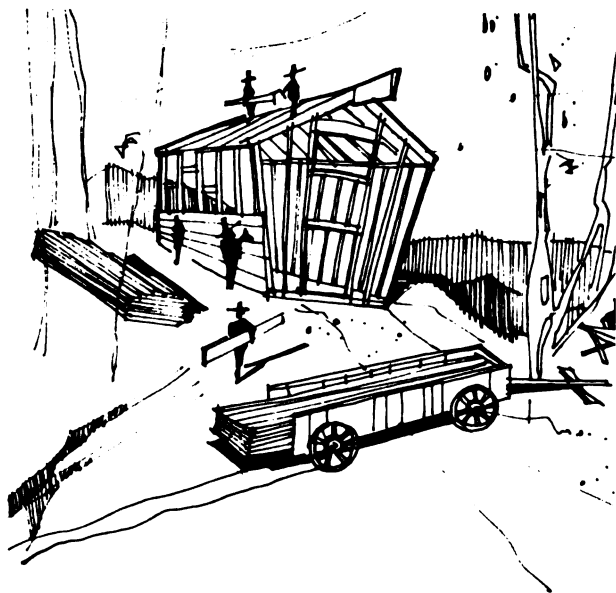
In recent years, however, great strides have been made in the development of new materials and construction methods which are beginning to have a definite effect on the building techniques of the merchant builder. Moreover, their influence is certain to increase as their use proves economically sound.

In this chapter we shall describe the various methods presently used, to employ the traditional structural materials, and note the new structural ideas being developed, particularly those that show indications of being adaptable to the merchant built house of the future.

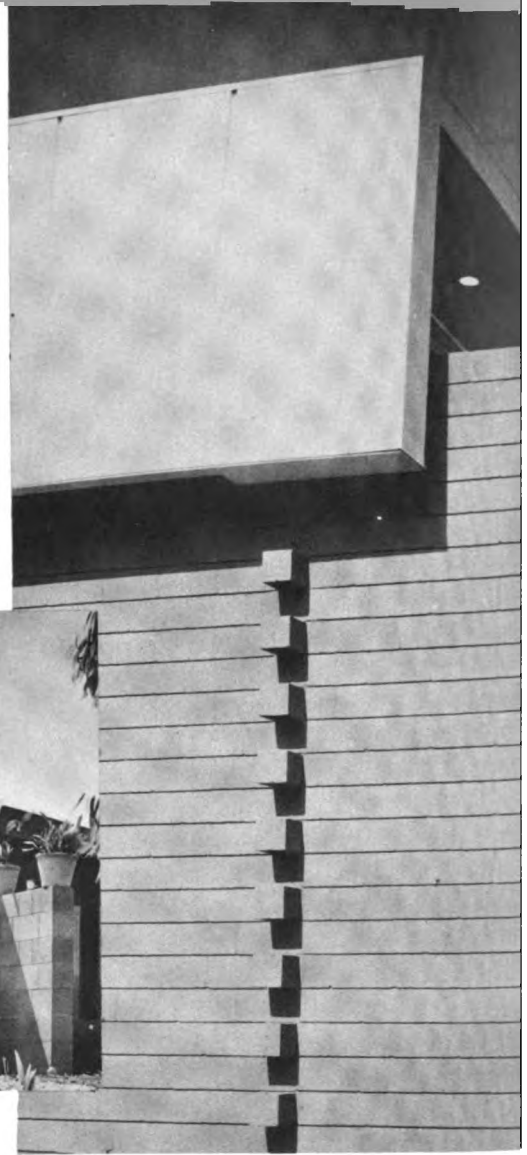
CONVENTIONAL WOOD FRAMING

Since colonial times, American houses have been built with a framing system of milled lumber, cut, fitted, and fastened on the job. Obviously, a system so widely used for so long a time has many advantages. It is highly flexible, the materials are relatively cheap and plentiful, and when properly built, the finished house is strong and durable.

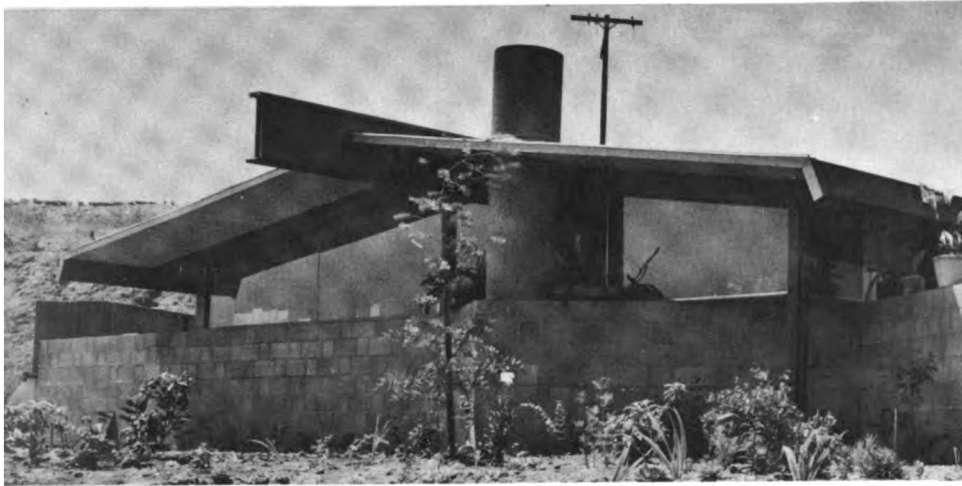
However, in the light of present high labor costs and current manufacturing techniques as applied to nearly every other consumer product, it can be slow and wasteful, particularly when applied to mass housing. Precutting and packaging in the mill only partially eliminate these faults.



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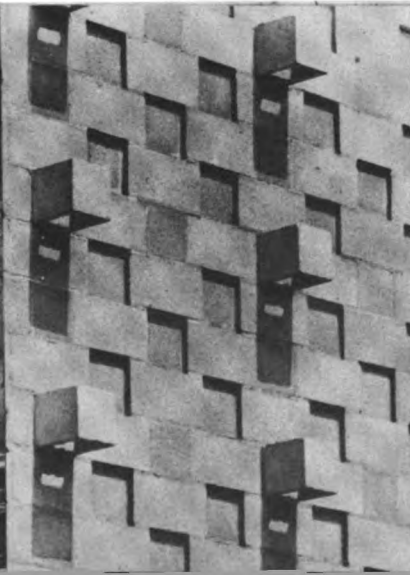
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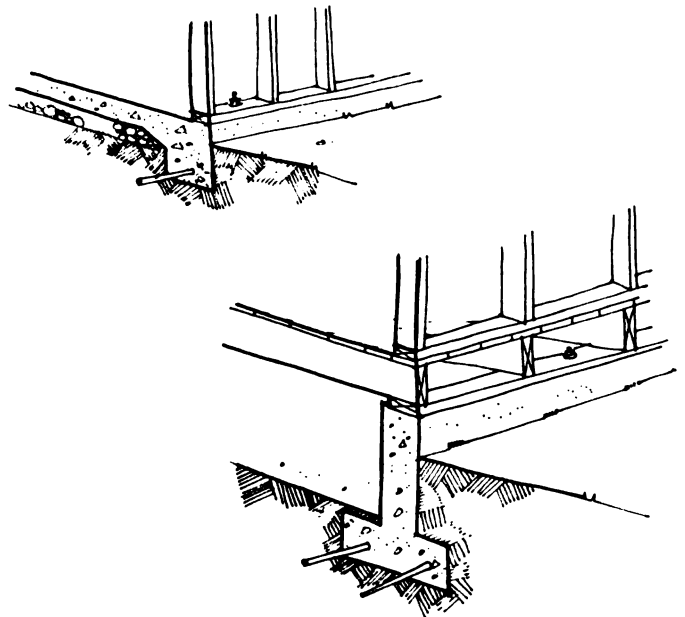
From the standpoint of esthetics and use, there are additional inherent restrictions in the conventional wood framing systems. The roof, built up of many light members trussed for strength, becomes complicated in shape in all but the simplest of rectangular plans. Sizes of openings are limited by the continuous roof load on top of the walls, while the wooden floor must be raised above the ground, with corresponding difficulty in integrating indoor and outdoor areas.

MASONRY CONSTRUCTION

In some parts of the country, masonry is a traditional structural wall material. Today, many merchant builders use reinforced masonry (concrete block, clay block, brick, etc.) for all or part of the exterior walls supporting a conventional frame roof. The problems and limitations of masonry used in this way are similar to those of conventional wood framing. The units are small, require skilled labor to install, and are subject to many limitations with regard to openings. An additional problem is that of waterproofing and insulation. Generally speaking, the advantages in its use are speed of erection and freedom from maintenance.

The Concrete Slab Floor

In recent years an increasing number of merchant builders have turned to the use of the concrete slab floor. This is due not only to its economy in mass operations, but also because it decreases the height of the floor above the ground and allows greater ease of access between the interior and paved exterior areas. It forms a hard, level, surface suitable for finishing in a variety of ways, but it has definite faults which must be overcome.





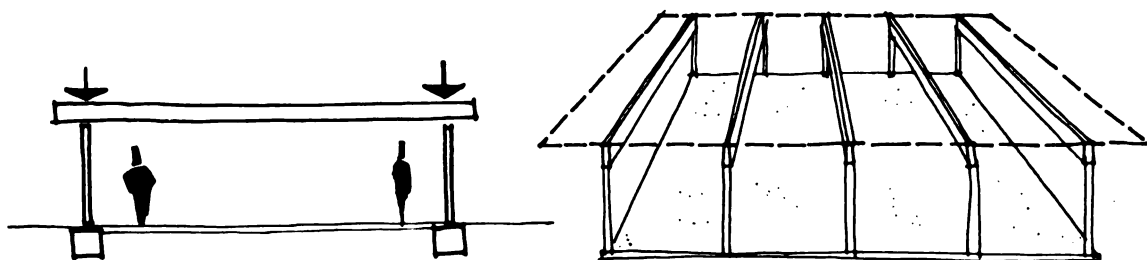
It may be subject to dampness and cold, and its use complicates the installation of wiring, plumbing and ductwork. All of these disadvantages however, can be, and have been, overcome by proper waterproofing, insulation and drainage methods, and by the use of radiant and perimeter heating systems. A point to be remembered, is that its economical use is generally limited to a flat site. Steep hillside locations present many problems and complications in both structural cost and moisture control.

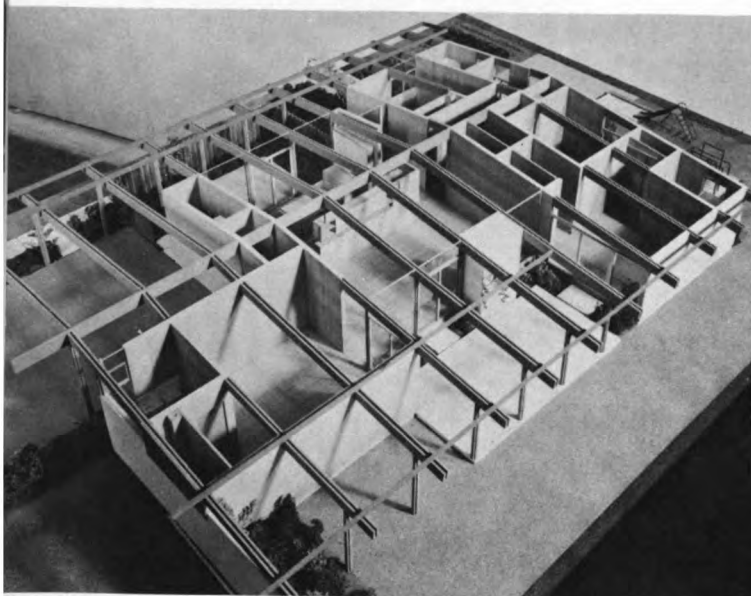
DEVELOPMENT TRENDS

In an effort to overcome the disadvantages of conventional framing systems, efforts have been directed in two basic directions; the developing of new methods using the same basic materials, and the search for new materials. Both of these trends are apparent in the structural systems that follow.

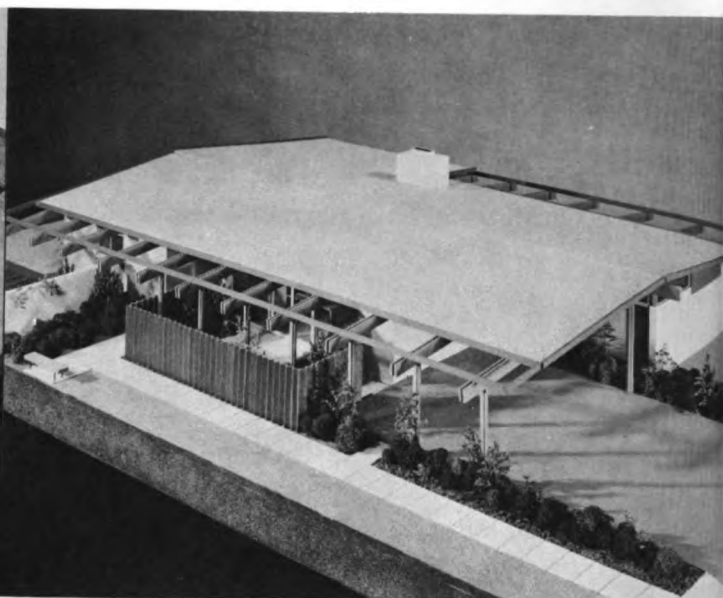
Post And Beam

The chief variation from conventional framing in the structural use of wood, and a method already in use by many merchant builders, is the so-called post and beam system, in which the roof load is concentrated on beams supported by posts or columns, rather than continuously on the walls. The spacing of the beams depends on the span limitations of the roof material, while the strength of the beams determines the distance between posts. The advantage of this method arises from the fact that, between supports, complete flexibility is possible. The roof structure can be made of a variety of materials, such as wood joists, planks, laminated wood strips, composition panels, metal decking, etc.



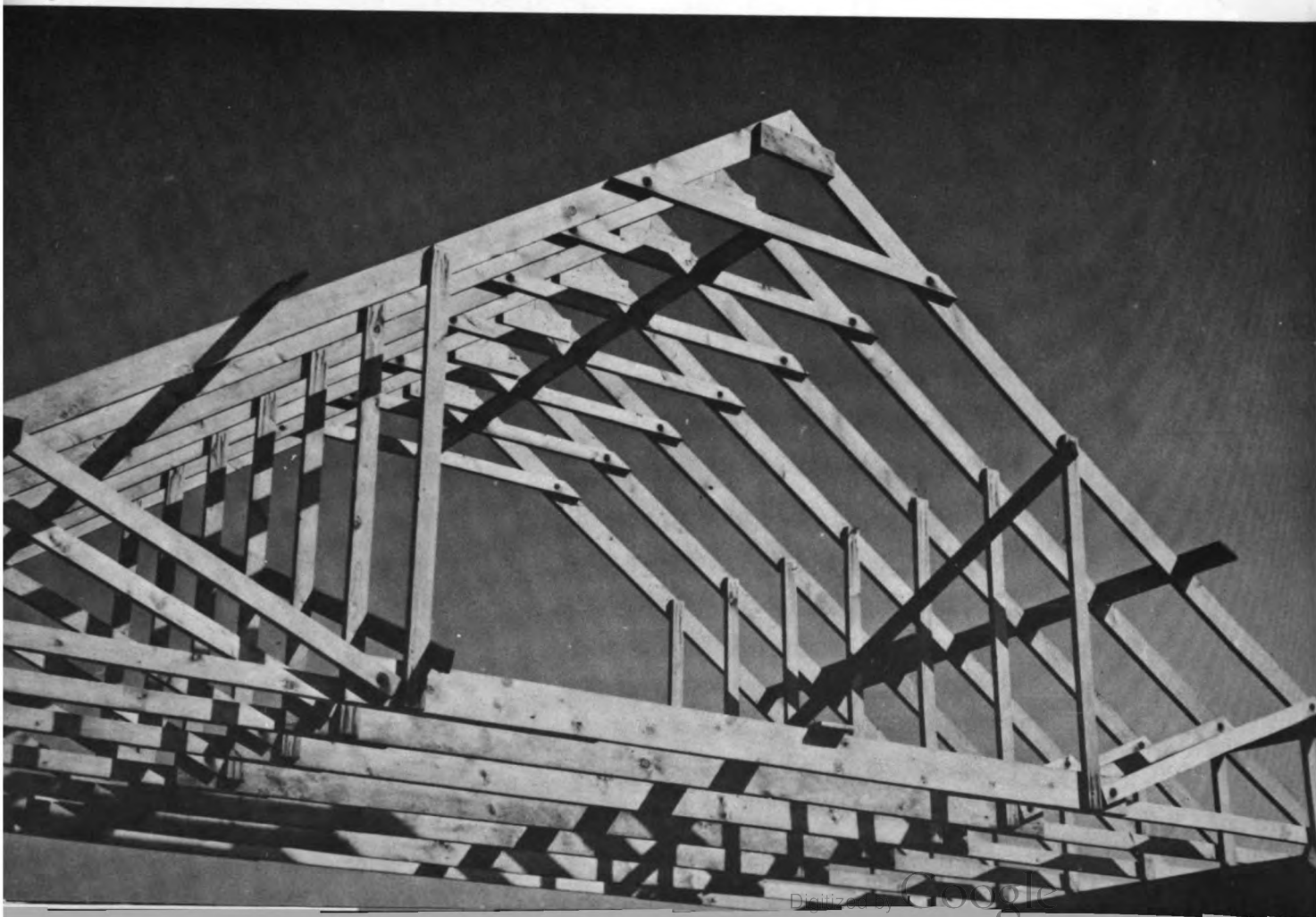


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As in all systems, certain disadvantages become apparent. The framing problem is complicated by the need for raising, setting, and connecting relatively heavy members. The roof structural material, in most cases, must be suitable for use as a finished ceiling. With the disappearance of the conventional attic space, ingenuity (and possible additional cost) is required to provide space for wiring and duct work. Also, any required thermal roof insulation is usually installed above the roof structure with a consequent loss in efficiency.

The Attic Truss

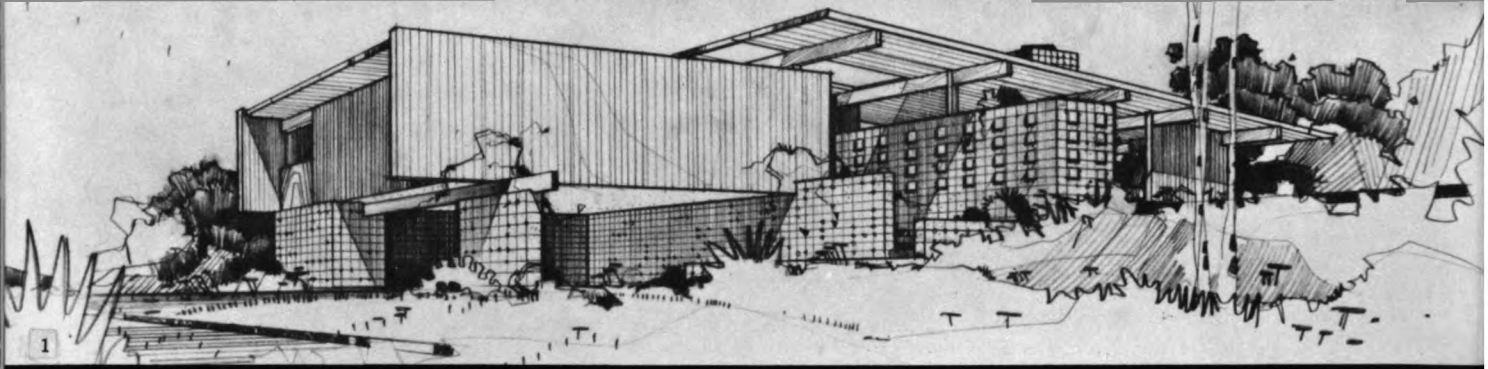
Another method which achieves the flexibility of non-bearing interior walls, inherent in the post and beam, and one which overcomes its disadvantages, is the use of a trussed roof system. These trusses are often designed to allow the use of the depth of the truss as additional living area. The resulting attic space however, with its sloping ceilings and limited window area, leaves much to be desired as truly useful space. In addition, under this system the flexibility in plan of the post and beam is lost.

FOUNDATION VARIATIONS

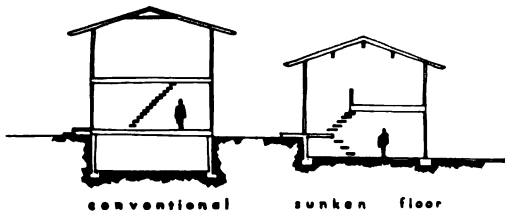
As in the development of wood walls and roof framing, continuous efforts are being made to find better ways of building concrete floors and foundations. Recent methods, intended to decrease the excessive cost of deep foundation walls, include: the floating slab; the concrete grade beam; and the sunken floor in two-story homes.

The Grade Beam And Floating Slab

In the floating slab method, the floor is designed as a reinforced concrete structural pad, poured over a sand or gravel bed to allow water to drain away from the slab. The grade beam is basically a perimeter beam system that supports the structure of the house, with the floor floating within its confines. Both of these systems are designed with the idea that if water does freeze beneath them, the expansion will raise the structure as a unit.

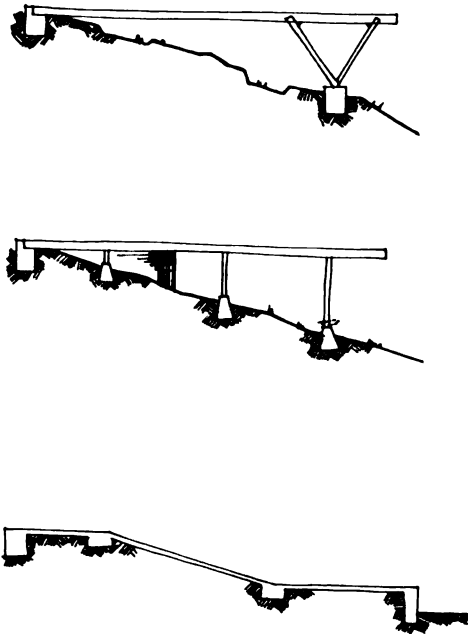


The Sunken Floor Slab



Another method is to excavate the area within the deep foundation walls, which in the north and east must extend below the frost line, three feet or more below the surface. This permits the utilization of this space as part of the interior living area by waterproofing the foundation walls and employing a sunken floor slab.

Hillside Foundations



The merchant builder, intending to erect houses on a sloping site, must use ingenuity to keep construction costs within reasonable limits. The normal concrete foundation must be replaced, at least in part, by an appropriate subfloor framing system. The *Trussed Strut*, the *Stilted Foundation*, and the *Cantilevered Floor* are three basic systems which may be used individually or in combination. Their common purpose is to support the house free from the sloping ground beneath it. The trussed strut acts as its own braced frame and ties the house to the ground, while the stilt system includes a variety of subfloor supports imbedded in the foundation for rigidity. Both systems lend themselves to the cantilever principle which permits a small foundation base to provide the bearing area necessary for the structure.

STRUCTURAL BENTS

Concrete has also been used to a limited extent in a system known as the structural bent. The principle involved is that of a post and beam in which the joint between the two is rigid enough to allow them to act as a single structural unit. This bent can also be made of steel or wood, but the method can be applied more readily to a plastic material like concrete since the problem of the joint connection can be eliminated.

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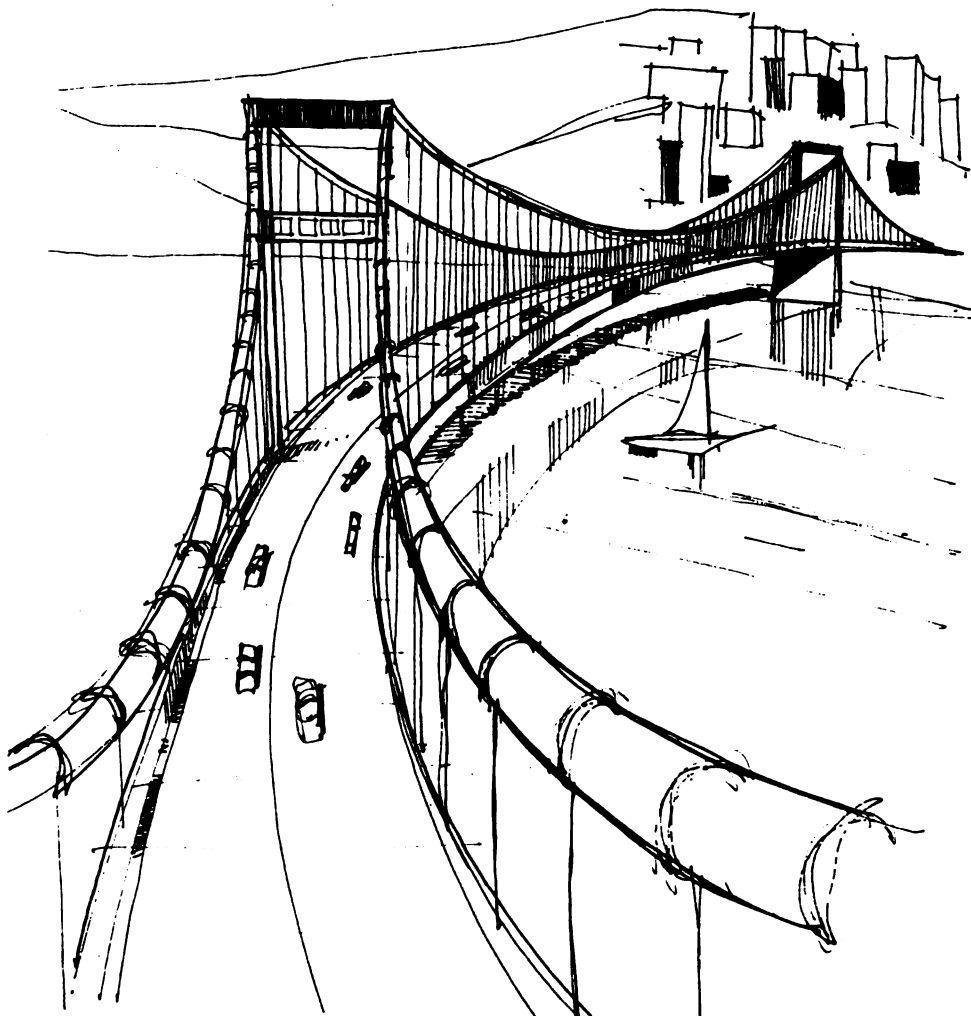
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STEEL

In the search for new structural concepts adaptable to the problems of mass housing, one of the most logical materials is steel. Of the immense amount of structural steel produced in this country, only a small fraction is consumed by the building industry, and little, if any, is used in the builder's house. But steel is readily adaptable to standardization and prefabrication. In addition, it is a material which combines flexibility with great strength in relation to its bulk, and which can be quickly and accurately placed. It is these properties that must be fully exploited in order to render its application economically and esthetically satisfying.

Residential steel construction has tended to parallel the use of wood, in that the structure has either been fabricated of many parts, like a conventional frame house, or the steel members have been used as columns and beams supporting various roof spanning materials including steel decking. But the use of steel as a direct replacement for wood in conventional framing is but a first step to the vast possibilities inherent in the use of the material, with its potentially longer spans and smaller members. It must be remembered that steel is a precise dimensional material. The preliminary preparation must be thorough and sound if proper results are to be obtained.





OTHER NEW MATERIALS AND METHODS

There are, as will be seen, many advanced structural systems being developed by imaginative designers and engineers. Some will have little adaptability to mass housing, but all, in varying degrees, show possibilities for future development.

All these new systems, including the use of steel described previously, have two common characteristics. One is economic, in that they try to develop alternative solutions to the present system of building by handicraft methods, long discarded in other industries. The second arises from the need to provide for changing ways of living as reflected in the desire for openness, flexibility and a maximum feeling of space within the limits of the small house. The flexibility thus gained, requires the solution of many non-structural problems such as heating, cooling, insulation, lighting, and plumbing systems, which no longer can be installed in the traditional way. Each new structural system must, therefore, offer a satisfactory solution to the problem of building a saleable house before it can interest the merchant builder.

A brief description of the more prominent may suffice.

The Lift Slab

After the concrete floor slab is finished, and with the required steel structural columns in place, concrete roof and upper floor slabs are poured directly on the surface thus provided, and raised with jacks to their final position, by sliding them up the columns. This allows complete freedom of design below the roof since in effect, the result is a widely spaced series of columns with all beams eliminated. For the merchant builder it would be difficult to adapt to irregular plans or on any but level sites.

Structural Plastics

Many uses have been found for plastics in the building industry, but to date the practical structural application of the material is still in the experimental stage. However, recent developments in polyethylene plastics may well revolutionize building techniques with the production of lightweight plastic structural members or modular precast plastic structural living units.

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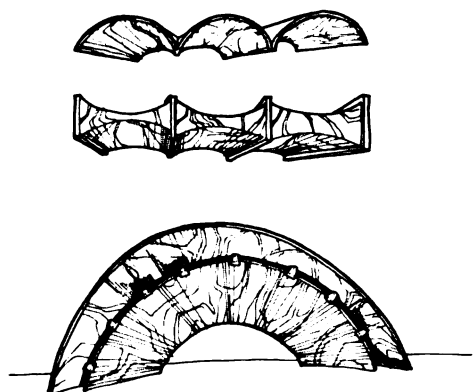
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The Dome

In the past few years a number of experimental structures have been built using the dome as the basic structural element. These have been either concrete shells, sprayed over a balloon form, or small units of metal or plastic fabricated into a hemispheric network called a geodesic dome.

From an economic standpoint, these domed structures, produced in quantity, can probably compete successfully with conventional framing methods. But from the merchant builder's point of view, the problem, in this case, is not one of cost, but rather of adapting the system to his special requirements. Since the overpowering effect of the repetitious form throughout a tract must be considered, this concept does not seem readily adaptable for mass housing developments.

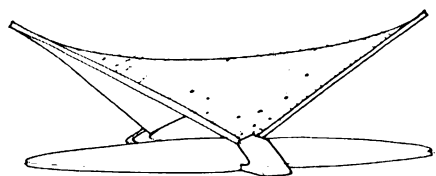


Bent Wood—The Vaulted Roof

Thin, flat materials, such as wood planks or plywood, can be tremendously strengthened by bending. Using this principle, plywood has been used as a roof structure with single sheets bent to form a series of vaults, or in double sheets forming reverse curves at the top and bottom of stressed panels, carried on a post and beam frame.

It is also possible to form a series of large plywood sheets into a complete vault, thus forming a total structural system in itself.

The Warped Plane



Another bent wood system is that of the double-warped plane, in which the skin of the structure forms its own support. By bending an arch in both directions, wood or steel decking can be made to span many times its normal allowable length. As in the case of the dome, many problems remain to be solved in adapting these structural concepts to mass housing, but in this system the possibilities for future use are increased by the fact that it can be fitted to a variety of forms.



PREFABRICATION AND STANDARDIZATION

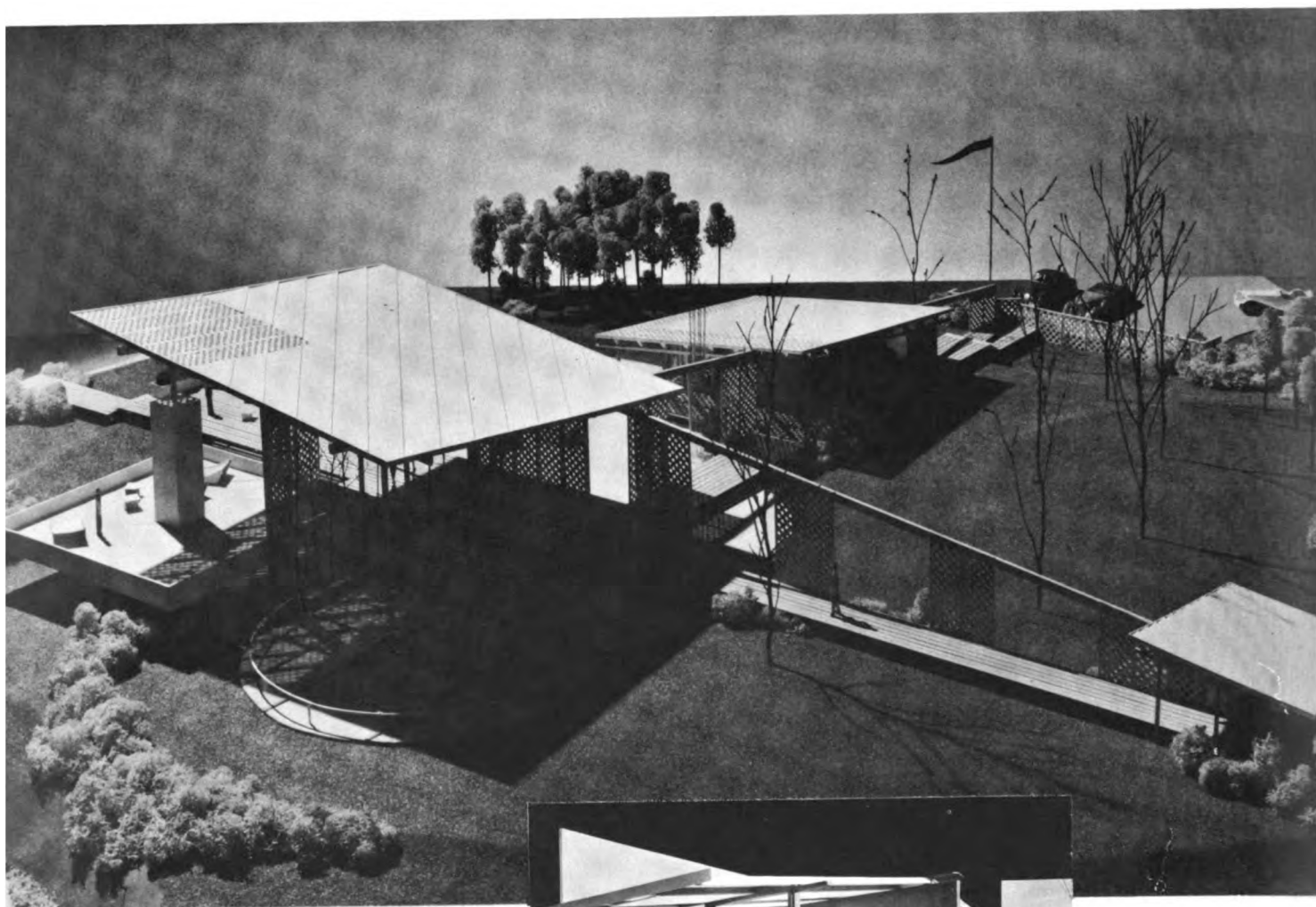
In recent years the sale of prefabricated "packaged" houses to builders has steadily increased, and today approximately one out of every ten houses built in this country is produced by this method. Developed in the Middle West, it has spread to other sections of the country, and has been particularly adaptable to the smaller builder in areas within the range of economical transportation.

The prefabricated house today is a far cry from the lightweight demountable structures built during the war years. Some of the more recent models are large, highly complicated, and practically indistinguishable from a conventionally built house. Indeed, the overemphasis on conformity has tended to restrict the design possibilities inherent in a solution which honestly expresses the true structure.

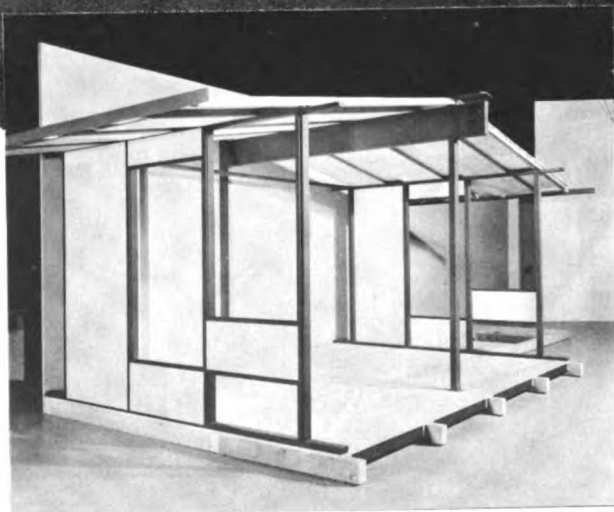
THE BUILDER-DEALER

Under this system a merchant builder can select from the standard models of an established manufacturer, one or more designs, for which the structural and finished parts have been shop-fabricated and packaged as completely as possible to allow for easy handling and transportation to the site. Since the houses are purchased, assembled and sold as a manufactured product in which the builder acts as a retailer, his advantages include: lowered payroll, overhead, and inventory; shorter completion time; and assistance from the manufacturer in land acquisition, site planning, financing, and promotion. The builder, however, continues to be responsible for grading, paving, utilities, and foundations, and must retain local subcontractors to install the plumbing, electrical, and heating systems.

The resulting house is attractive to the lending agency as well as to the buyer, since both are dealing with a nationally advertised brand-name product whose design, whatever its architectural merits, is based on extensive research in the field of public acceptance. In addition, it is priced at a scale comparable to similar houses in other areas.



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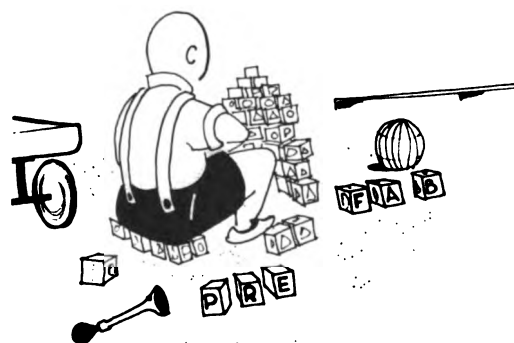
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THE PROBLEMS OF PREFABRICATION

Among the factors which may adversely affect prefabrication, may be listed the discrepancies of local building codes (which in many cases include archaic and restrictive clauses) the reluctance of labor unions to admit the use of factory-assembly to the extent technically possible, and the wide variations in site and climatic conditions encountered. Many of the advantageous elements of prefabrication moreover, have been matched by large-scale builders through the use of preassembled components, panelization and precutting, while retaining the flexibility of designs adapted to their particular needs and location.

The Preassembled Component

One important development is the increasing use of preassembled packaged units. Baths and kitchens, plumbing, heating and air conditioning systems, fireplaces, cabinets, etc., are being mass produced as flexible component units replacing a multitude of smaller parts formerly assembled on the site.



Panelization

Flexible panel sections have been developed by merchant builders as a means of speeding construction. For example, the erection of wall units fabricated on the site, complete with windows, doors, and sheathing, allows the individual builder to match, to a degree, the prefabricators' more highly developed operation.



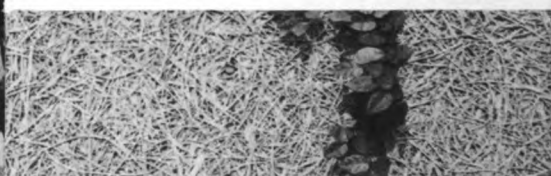
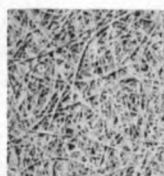
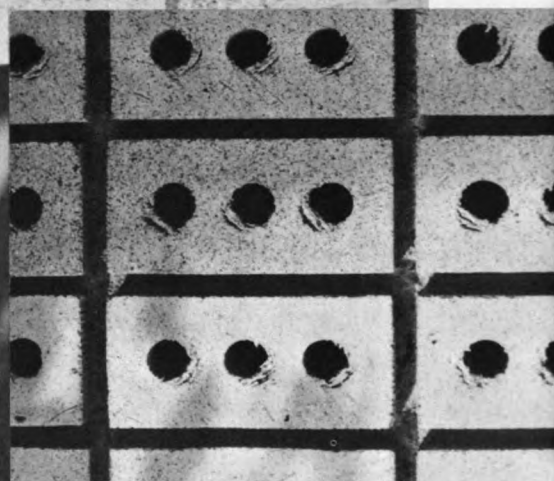
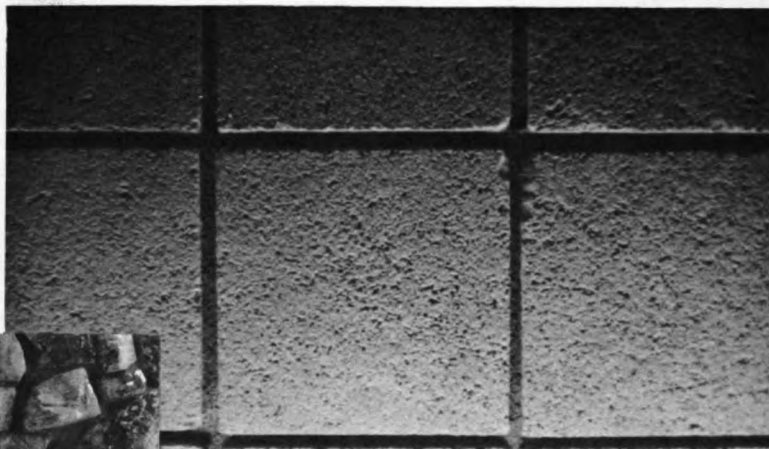
Precutting

By precutting lumber at the mill, building costs can be appreciably lowered by reducing carpentry labor time as well as waste on the job. This may entail not only the cutting of structural members to predetermined lengths, but may include dadoes and notching of members as well as the packaging of lumber into wall and roof panel bundles for delivery to the site.

Dimensional Standardization

In an effort to simplify the process of combining the many construction materials in use today, an immense amount of effort has been expended on the task of standardizing their dimensions to some common factor or module. The basic module used in conventional wood framing for example, is provided by the 16" spacing of studs and joists, which in multiples of three or six corresponds to the 4'-0" x 8'-0" sheets of plywood, gypsum board and other surfacing materials. Carried further, the process of standardization involves the coordination of thousands of manufactured items ranging from masonry units to metal sash.





TEXTURE AND COLOR

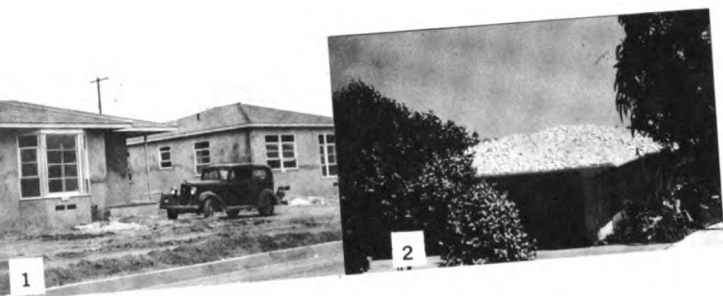
It is nearly always true that structural systems honestly expressed, will produce an esthetically satisfying appearance. However, many construction materials are used primarily as a weather-tight covering for a structural frame and, in a purely decorative way, as a design element through the use of colors and textures.

Actually, the materials of the merchant builder's house are apt to result from a combination of all these applications. A concrete block wall, for example, constitutes a structural element of the house, acts as a weathertight enclosure, and by its own form, texture, and pattern, may become a handsome element of design.

SURFACING MATERIALS

In the frame house, many materials such as wood siding, shingles, plaster, masonry veneer and plywood, have been used singly or in various combinations as a covering for the studs of the exterior walls, while the roof structure, depending on the pitch, may be covered with wood or composition shingles, shakes, roofing felt and gravel, tile, etc. All of these materials have the common characteristics of strength and durability as well as the ability to afford complete protection from the elements. The variety and proportions of the surface materials applied to the interior of the house, on the other hand, becomes primarily a matter of developing patterns of texture and color within the limitations of the budget.

The choice of floor materials is somewhat more specialized in that the flooring selected must provide an attractive, durable, and easily maintained working surface suitable for application to the type of structural subfloor used. A partial list of the various floor materials will indicate the extremely wide choice available. In addition to the traditional hardwood flooring and carpeting, and the ceramic tile and linoleum used for many years in baths and kitchens, the builder today may select a masonry material such as stained or textured concrete, brick, slate or terrazzo. Or he may choose a synthetic floor covering such as asphalt, vinyl, rubber, and cork tile. The choice of a specific flooring can therefore be made not only on its physical characteristics, but on color, pattern, texture, and cost.



The Physical Effects Of Texture

In all buildings, the factors of lighting, cleanliness, and ease of maintenance are affected to some extent by the textures of the materials employed. Hard, smooth-textured materials have a high capacity for reflecting light, heat, and sound, and are generally easier to clean and maintain. Tile, hardwoods, plastics, metal, and smooth-trowelled plaster are but a few of the many examples.

Conversely, rough textured or soft materials such as stone, coarse draperies, and fibrous synthetics tend to absorb light, heat, and sound, and are, at the same time, more difficult to keep clean.

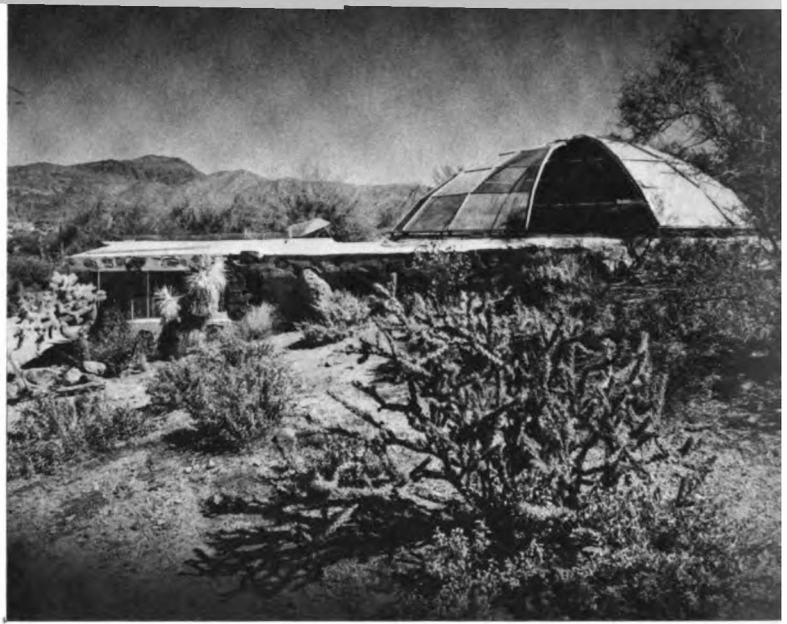


Texture As An Element Of Design

The unhappy and sometimes ridiculous results arising from the misuse of materials as applied to the builder's house, are usually the results of attempts to combine too many textures. "A little can go a long way" makes considerable sense when thinking of texture accents in the small house. The unrestrained use of texture may well produce a feeling of confusion in contrast to the complementary effect of a few materials sensitively combined. Areas of rough-textured wood or stone, for example, are most effective when simple in form and properly related to contrasting smooth surfaces.

These material patterns constitute an essential element in the over-all design of the house; a point which assumes a considerable measure of importance in tracts where it becomes desirable to provide a pleasing variation between otherwise almost identical houses in the immediate vicinity.

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COLOR

Color, in conjunction with materials and textures, can become not only an important design element, but an exciting sales tool.

Its successful use depends, in most cases, on the careful coordination by an expert consultant, not only of the job-applied colors such as paint, stain, and wallpaper, but the selection of such factory-colored products as kitchen appliances, plastic laminates, ceramic tile, plumbing fixtures, and floor coverings. In a large tract this often involves the development of a complete series of charts listing and illustrating every colored item and finished surface for a half dozen or more integrated color combinations.

Paint manufacturers are continually improving their products to the builder's advantage, not only in wearing quality, but in the color selections available. The problem confronting the merchant builder today is the continually rising cost of application, and the present trend is toward the use of factory-applied finishes for an ever increasing variety of building components ranging from sash and doors to cabinets and siding.



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CLIMATE CONTROL

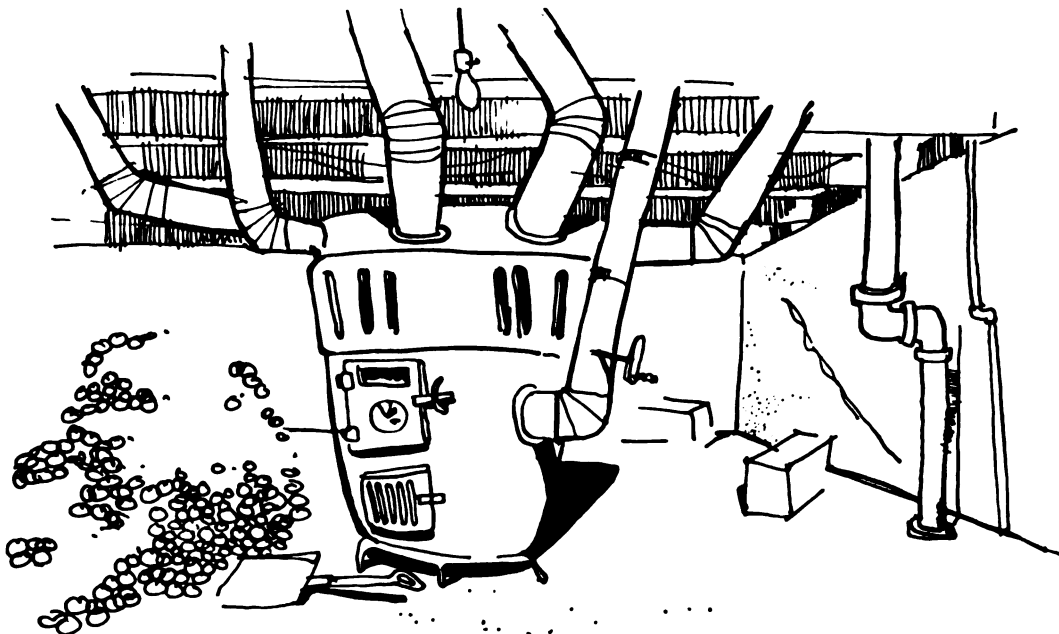
In the past ten years great strides have been made in the development of mechanical methods for controlling the climate of the builder's house. With the trend toward the open plan one-story house (often without basement or attic), the old fashioned gravity warm-air furnace has, by necessity, been replaced by a variety of heating, cooling and air conditioning systems designed to operate within the physical limitations thus imposed.

Warm-Air Heat

The long established warm-air furnace system has been immensely improved by the use of compact, quiet blowers, which transfer the heated air through overhead ducts to separate zones controlled by sensitive thermostats. Further efficiency has been achieved by the development of small-pipe duct systems requiring less space, and circulating the air at a higher temperature and velocity.

However, the satisfactory heating of a basementless house in a cold climate requires a system of distribution in which the heated air is forced through subfloor ducts radiating from a central furnace to a perimeter duct along the outside foundation wall, warming the floor in the process. From there it rises through floor registers set at intervals to provide a warm curtain of air over windows and exterior wall surfaces.

Warm-air heating has the advantage of flexibility and fast temperature rise, and the duct work, if properly designed and located, can be adapted to a summer cooling system.





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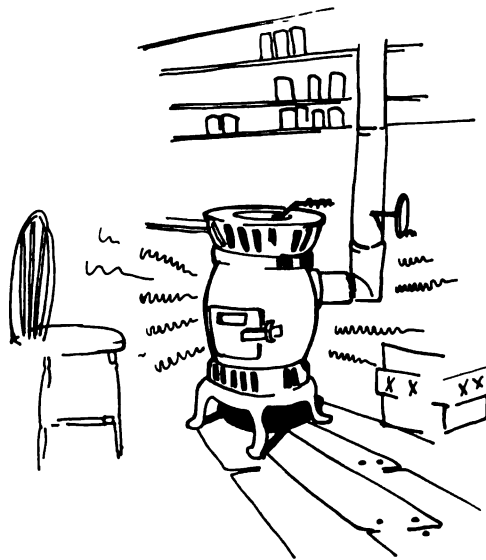
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Radiant Heat

Living spaces can be heated by radiation from a source which raises the temperature of interior surfaces rather than the air itself. These heated sources may be in any suitable location since, though warm air rises, heat, as a form of energy, will travel in any direction.

In the most common installation, water heated by a boiler, is pumped through a continuous system of coils embedded in the floor or ceiling, which act as the source of radiation. Hot water can also be used to provide heat for radiating convector units in baseboards.

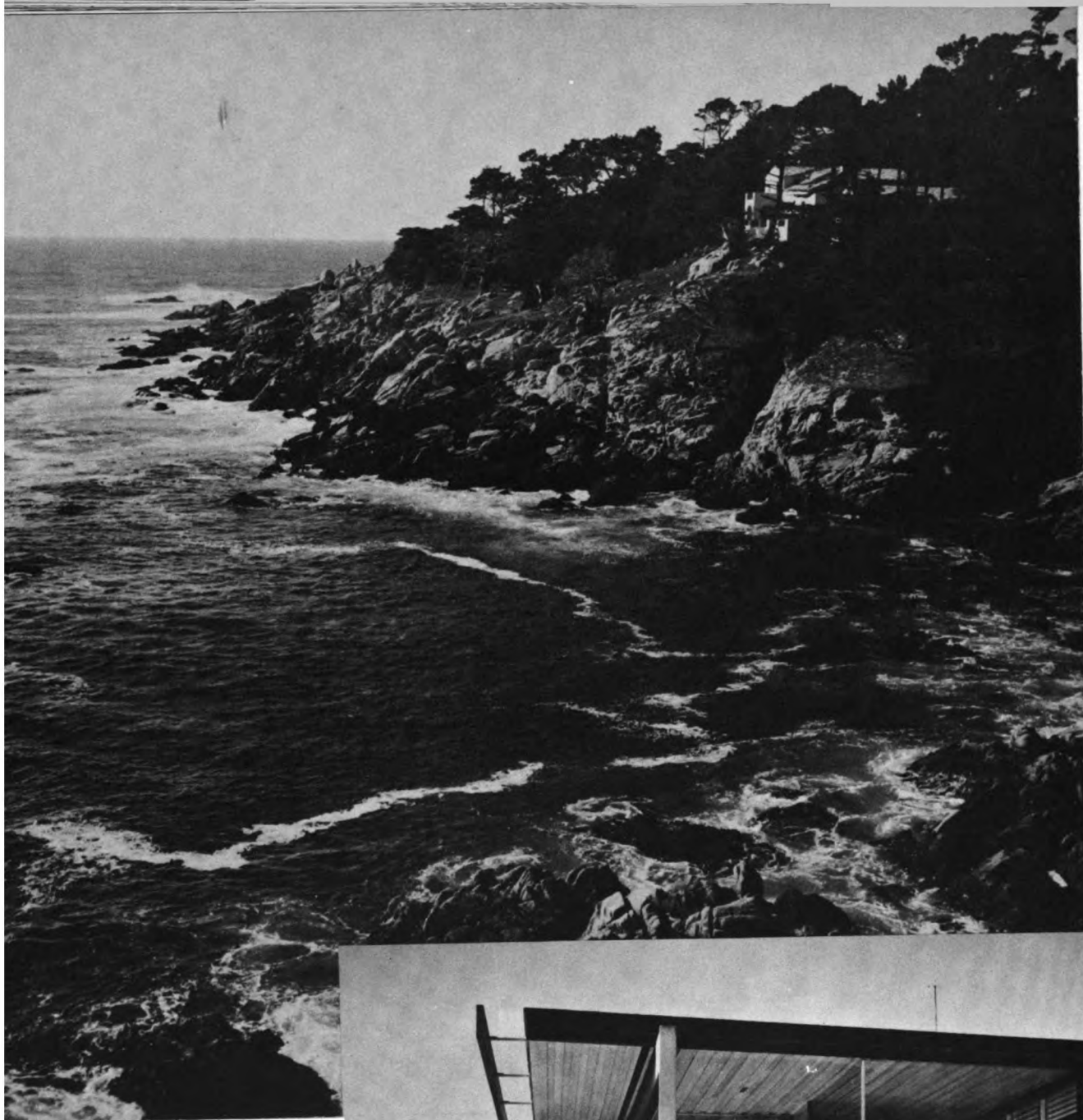
Radiant heat is clean, even, and draft-free and though somewhat less flexible than forced air systems, its disadvantages have been greatly reduced by the development of electronic thermostatic controls and outdoor temperature anticipators.



Electric Heat

Radiant heating may also be provided by electric energy, either through glass wall and ceiling panels, or by means of wires embedded in plaster ceilings. While these systems cost little to install and maintain, they are comparatively expensive to operate except in areas of low power rates.

As in the case of hot water, electric energy may also be used to provide heat by convection by warming the air passing over heated coils, fins or resistance wires in baseboard units. Electric panel units may also be used in baths or other small rooms as a source of quick heat in conjunction with other systems.



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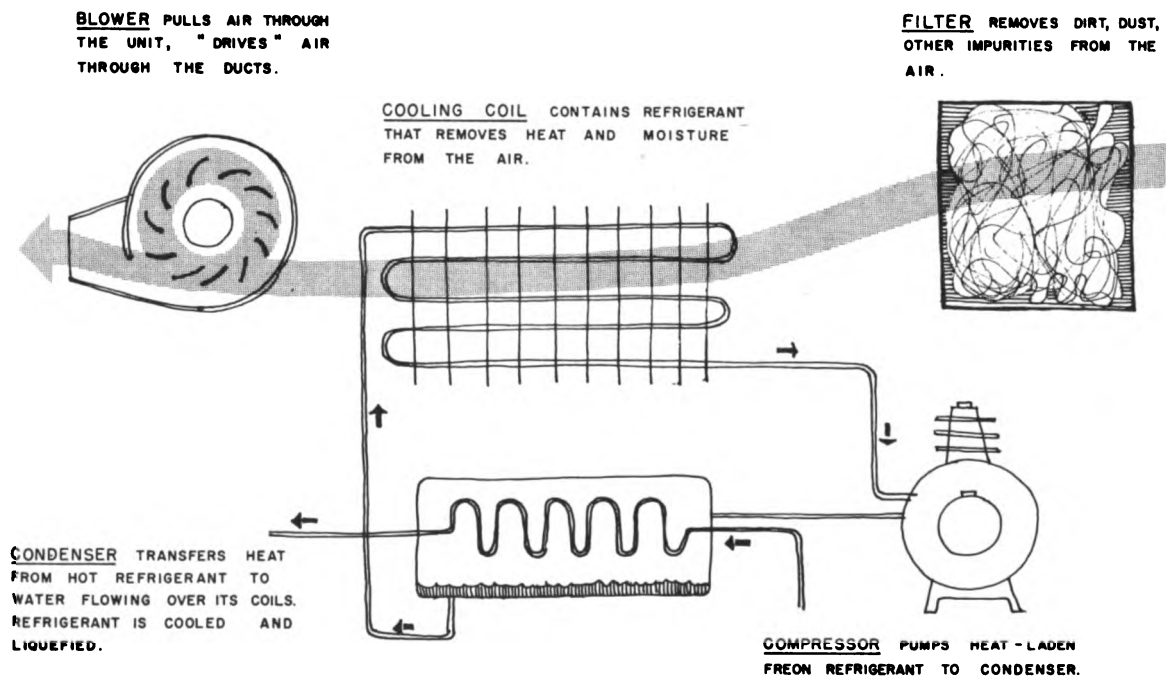
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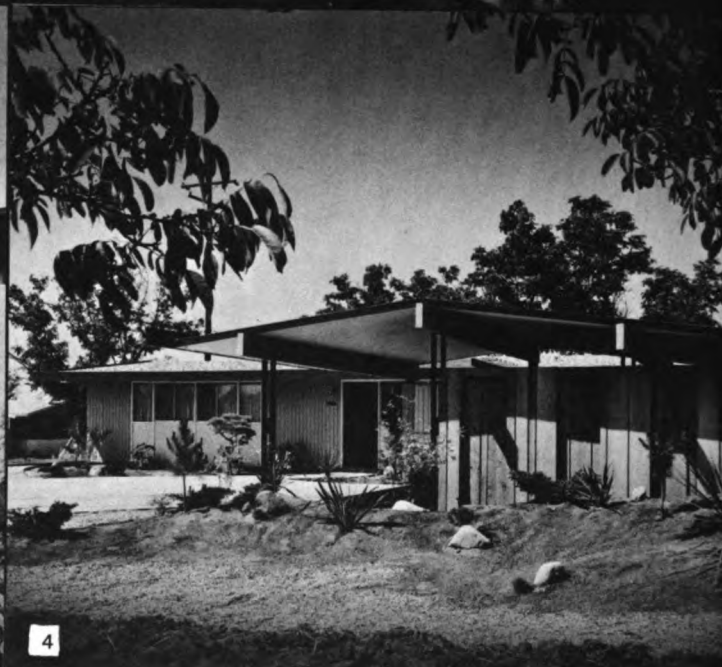
Air Conditioning

The complete control of interior climate in the builders' house through air conditioning has only been limited by its cost.

True air conditioning not only provides a means of heating and cooling, but maintains the proper moisture content in the air, and filters and circulates air throughout the house. The usual system consists of a cooling coil or evaporator, exposed to the inside air. Within its coils a refrigerant is released from pressure to change from liquid to gas and, in so doing, absorbs heat and moisture from the air. The cooled air is filtered to remove dirt and pollen and is distributed by a blower throughout the house. The heat-laden refrigerant is pumped through a compressor to a condenser where its heat content is extracted and discharged either to the outside atmosphere or to water flowing over its coils. As a conservation measure, this water is often circulated through a cooling tower to permit its re-use.

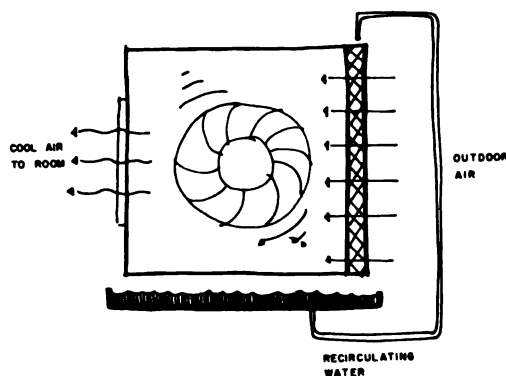
Complete cooling units are manufactured by many companies to be paired with gas, or oil-fired warm-air furnaces, using the same blowers and distribution ducts.





Evaporative Coolers

In the hot, dry areas of the Southwest, extensive use is made of evaporative cooling units, usually located on the roof. Their efficiency decreases in proportion to the amount of humidity in the atmosphere, but in desert climates they provide an economical method of summer cooling. By means of a blower, the outside air is drawn continuously through a watersoaked pad where it is cleaned, cooled and washed, and from which it is distributed either directly or by short ducts.



The Influence of Air Conditioning On Design

Since by proper home design the air conditioning load may be greatly decreased, certain principles have been established which can help to make this desirable sales feature less expensive. Among the generally accepted methods may be listed the following:

- The reduction of window and glass areas on west walls.
- Thorough insulation of walls, and particularly of roofs.
- The use of light-colored reflective roof surfaces and light paint colors on exterior walls.
- The use of concrete slab floors.
- The use of shade to the greatest possible extent, through landscaping, wide roof overhangs, exterior sun screens, and shutters.



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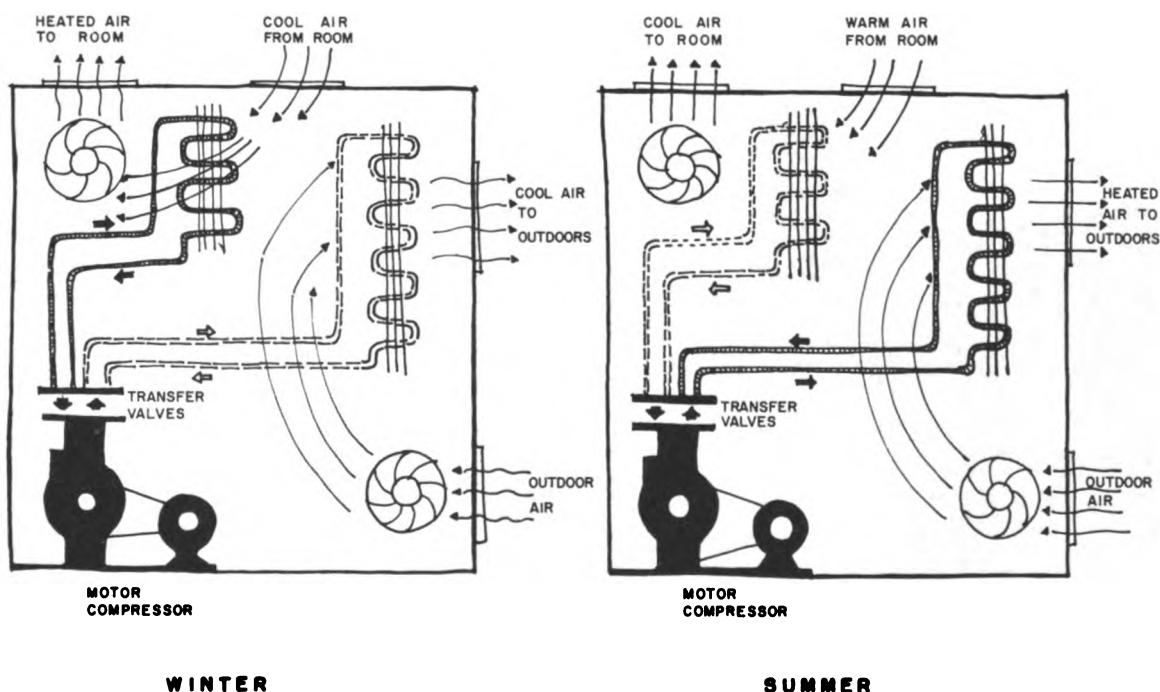
The Heat Pump

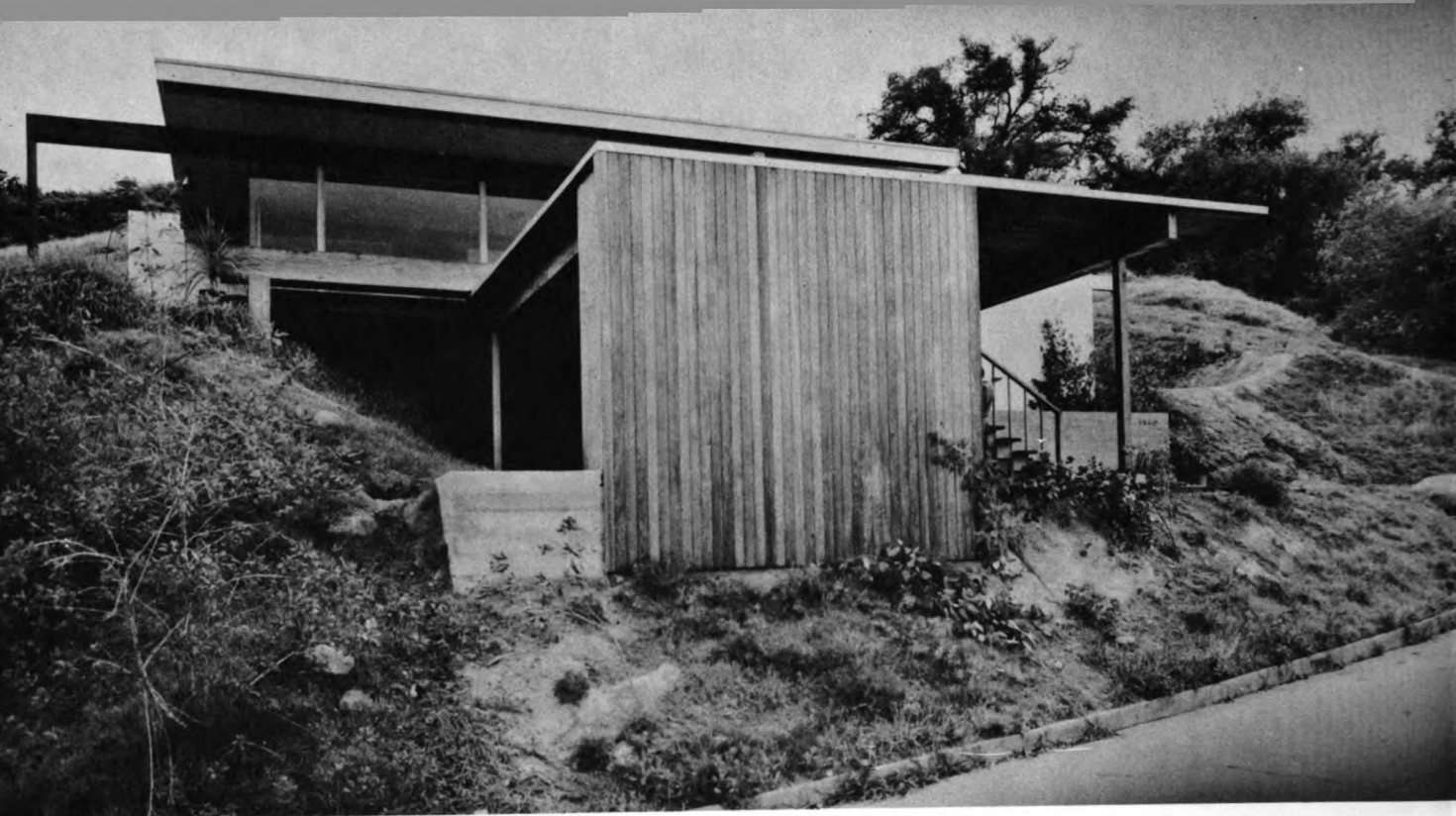
The demand for year-round comfort has resulted in an increased interest in a long-known, though comparatively little used, method of heating and cooling—the heat pump.

Its principle is that of a reversible electric refrigerator, which in winter extracts heat from water, outside air or the ground, to warm the inside air, and in hot weather removes heat from within the house and exhausts it to the outside.

In operation, the exterior source gives up its heat to a much colder evaporated refrigerant (such as Freon 12) which gives off the absorbed heat to coils. These, in turn, heat the interior air. In summer, the warm, moist air from the house passes over refrigerant coils giving up heat and excess moisture which is dissipated to the outside air while the cool dry air is recirculated.

The true economic usefulness of such a system depends on its use as a year-round combination of heating and air conditioning, particularly in areas where electric power is cheap and plentiful.





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POSSIBILITIES OF THE FUTURE

Since the United States is a country characterized by climatic extremes of heat and cold, the desire for weather control systems will continue to increase as long as they can be sold at a price within the reach of the mass of home owners. It can therefore be assumed that industrial research will eventually result in the harnessing of solar heat and atomic energy. These technical advances, while important, constitute only one aspect of the over-all problem of providing pleasant living conditions within the varying climatic conditions to be encountered.

Experiments have shown that the efficiency of mechanical weather controls can be greatly increased by proper attention to the design elements of the house itself. After all, America is a continental nation, and a tract house appropriate for the climate of Detroit certainly fails to fulfill the shelter requirements of San Antonio or Phoenix.

People of past civilizations and cultures have often managed to achieve a considerable degree of weather control with no help whatever from the mechanical aids available to the American builder today. It follows that a house must be designed, located, and landscaped with certain principles in mind which can greatly reduce the load on heating and cooling equipment; orientation to catch cooling breezes, or to provide protection from chilling winds; overhangs and screens to furnish shade from the hot afternoon sun, or wide glass areas to absorb the northern sunlight; ventilation to dispose of the hot interior air, or insulation to retain it.

Wind, sun, water, trees, all are elements of the problem to be intelligently coordinated and used—and what is a proper solution in one location can be worse than useless in another.

With a better understanding of the realities of the natural environment, coupled with the mechanical systems available for use, the tract house can more completely achieve one of the basic reasons for shelter—true protection from the elements, no matter how extreme and variable they may become.



Chapter VI

THE BUILDING BUSINESS

The best concepts in housing will help insure today's economy, which depends greatly on home financing and construction employment.

Lender

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Architect

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Construction

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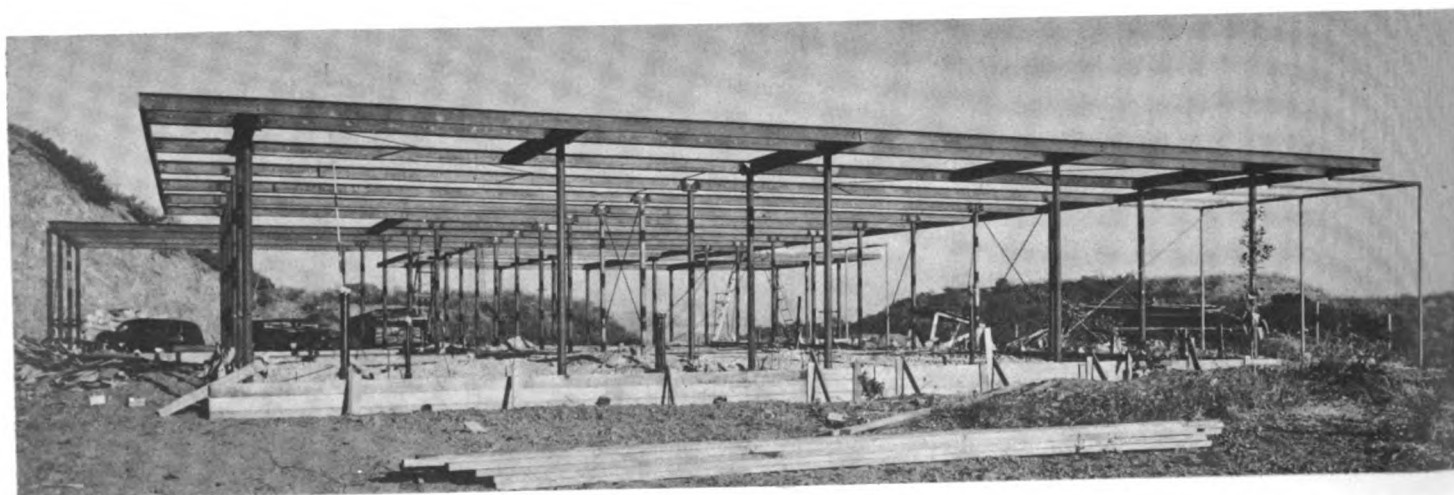
Builder's Office

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Sales Office

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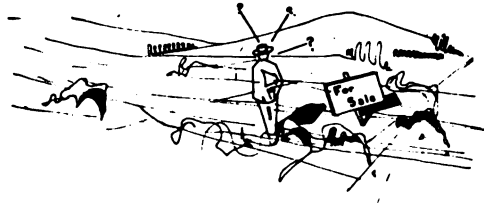
collaboration can ►►►

THE BUILDING TEAM

While it is true that the majority of merchant builders produce less than twenty houses per year, the business of building and selling houses in a competitive market is a complex procedure. Merely to list the operations involved in the development of a large tract will serve to indicate the variety of professional skills involved.

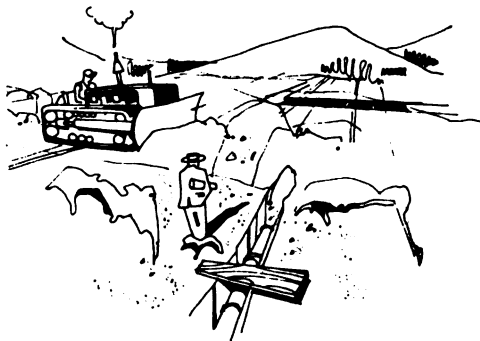
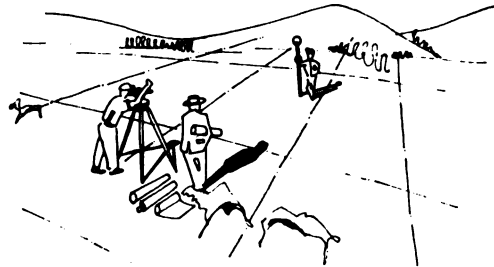
1. LAND ACQUISITION:

Buying land requires a thorough knowledge of local real estate values, including the land's potential for economical development and civic growth.



2. SITE PLANNING:

Community development requires the layout of street and lot patterns and over-all landscaping best adapted to the site; the allocation of commercial, school and recreational zones; and the correlation of the individual houses.



3. ROADS AND UTILITIES:

Tract engineering involves proper grading for surface drainage and traffic circulation with respect to existing trees and natural features, and the layout of sewers, water, gas, and power lines.

4. DESIGN AND CONSTRUCTION OF HOUSES:

The houses must be designed in a variety of models which are both attractive and adaptable to economical building techniques. The construction becomes a highly specialized building operation, involving the coordination of sub-contractors, the efficient employment of labor, and the purchase of materials on a large scale.



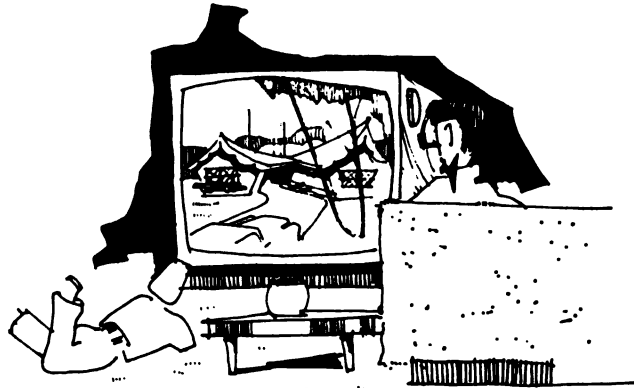
produce the GOOD HOUSE ▶▶▶

5. FINANCING

The tract builder must be able not only to borrow money for land purchase, development, and construction costs, but must make provision for obtaining mortgage loans for house buyers at a low down payment and monthly payments for which they can qualify.

6. MERCHANDISING:

Selling the builder's house involves not only concentrated, personalized sales efforts, but full use of present day methods of advertising and public relations.



BUILDER

ARCHITECT

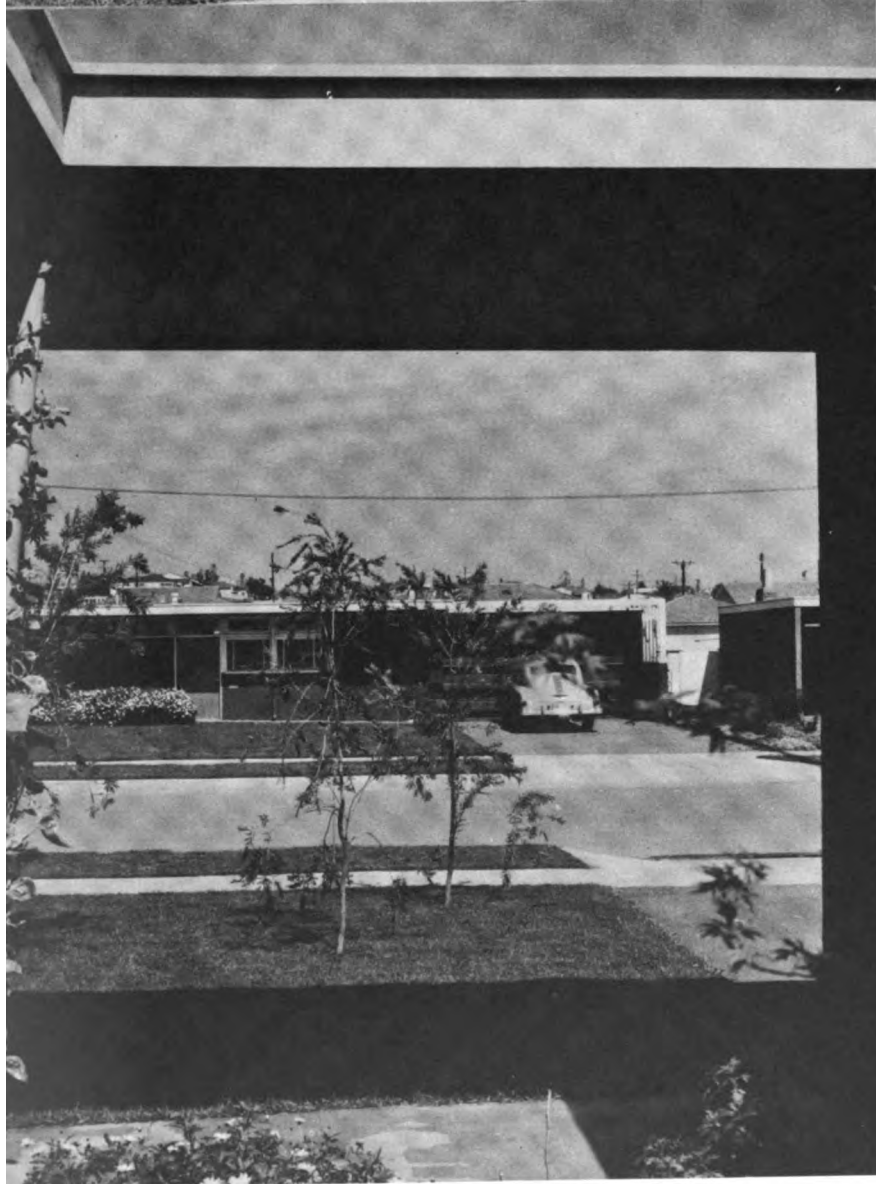
PLANNER

Each of these elements is important in itself and requires the coordination of experience and skill, either within the builder's organization or on a consulting basis. Nevertheless, some of the largest tracts in the country have been built and sold with an unbalanced emphasis on certain phases; in fact all too often the elements of site planning and design have been relegated to a position of minor importance by "practical" builders who have been commercially successful in selling their products to an uncritical public in periods of consumer demand.

But within these two often neglected phases of the builder's operation lies the chief hope of correcting the past sins of the merchant builder against the community as a whole. It is within this sphere that cooperation between the builder, the architect, and the land planner is most necessary if any real improvement is to be achieved.



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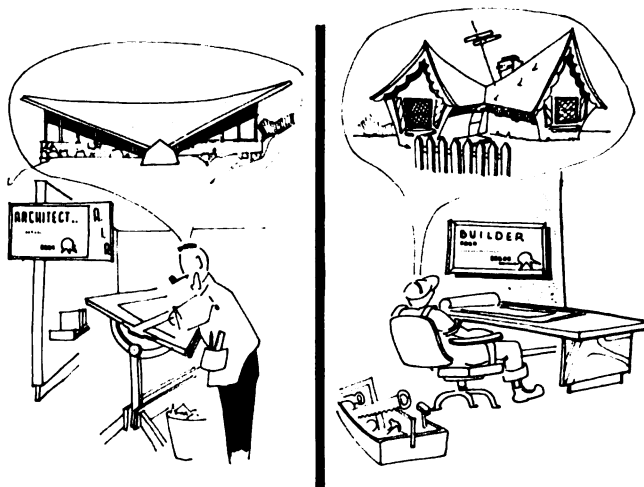
in the GOOD COMMUNITY ...

Conditions Restricting Collaboration

Greater collaboration between home builders and architects has been advocated and encouraged for years by their respective professional associations, but despite the example of a few outstanding exceptions, the results have made a discouragingly small impression on the country as a whole.

The reasons for this condition stem largely from a mutual lack of understanding and respect for the other's abilities and problems. Builders, in general, are indifferent to progressive design on the theory that they are in business to sell houses, and not to finance the education of the buying public's taste to a point above the general level of acceptance. They are therefore suspicious of the architects' attempts at improvement which may prove costly to build and limited in appeal.

Many architects, on the other hand, find it difficult to adapt their designs to accommodate the methods and skills of the merchant builder. They fail to appreciate the tremendous potentialities inherent in an industry which builds four out of five of the houses erected in this country.



This feeling of mutual distrust and indifference is aggravated by the fact that too few lenders, appraisers, and governmental agencies give adequate credit to good design in their evaluations.

Despite these problems it seems obvious that the chief hope for achieving true progress in home building depends on the industry's ability to develop a progressively increasing integration of the best efforts of the builder and architect.



people will ►►►

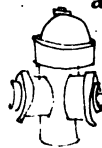
MERCHANDISING METHODS

Since the merchant builder is exactly what the term implies, the success or failure of his enterprise depends entirely upon the early sale of his product. Assuming that he is building an attractive, well constructed house, in a good location and at reasonable price, it is still necessary to bring it to the attention of eligible buyers—often in direct competition with other builders in the same area.

PRESALE PUBLICITY



All the accepted publicity media are used today by the speculative builder (including newspaper, radio, television and outdoor advertising) not only to create public interest, but as a means of directing buyers to the site. Articles in consumer magazines and the local press describing previous developments, and publicity received through competitions and award programs, are an additional means of attracting public attention.



THE MODEL HOUSE

Most buyers have difficulty in visualizing a completed house from plans and sketches, and many large-scale builders therefore, construct one or more models from which to sell the remaining houses in the tract. Every effort must be made to make the demonstration houses as attractive as possible, and experience has shown that the most successful results are achieved through the joint efforts of the building team. Only the coordination of the best available talent in applying the principles of merchandising, showmanship, and good design can make the model house operation a success. The problem requires the sympathetic collaboration of the builder, his architect, decorator, color consultant, landscape designer, and sales manager.



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r e c o g n i z e G O O D L I V I N G . . .

Digitized by Google

Handsome colors and furnishings not only make the house more appealing, but demonstrate how the buyer's own house will look when occupied. Properly decorated, the home can achieve a lived-in look, while restrained, small scale furnishings allow easy circulation and avoid a cluttered appearance.

THE SALES CENTER

Once the prospective buyers have arrived at the site, demonstration and sales techniques become important. Many progressive builders have developed carefully organized plans for their sales program, and these may include:

- The provision of parking facilities and controlled foot traffic through the house and yards.
- The distribution of sales literature and brochures, and the posting of descriptive placards.
- Booths for construction and material displays.
- Hostesses and demonstrators to explain special features.
- A prominently located sales office, equipped with floor plans, sketches, color charts, and tract maps, and with facilities for interviewing prospective buyers.

Whatever the actual arrangement, the entire display and sales center is based on the idea of acquainting every visitor with the desirable features of the product, and to afford the greatest possible convenience in buying.

PUBLIC RELATIONS

As in many other businesses, the merchant builder depends on past buyers for good will and word-of-mouth publicity, as well as for a certain number of repeat sales. This involves a policy of public relations with owners, including the maintenance of personal contacts and prompt attention to legitimate complaints and requested repairs. The builder must also be alert to changing public reactions, trends, and desires. Some builders have employed surveys to quiz past owners and potential buyers in order to set a pattern for future planning based on their answers.

OFFICIAL
BUILDING CODE
OF THE
CITY OF DETROIT
WITH ALL RECENT
AMENDMENTS

BUILDING CODE

of the
CITY OF PORTLAND, OREGON

Ordinance No. 7985
Passed by the Council July 3, 1932

MINIMUM PROPERTY REQUIREMENTS
FOR PROPERTIES OF
ONE OR TWO LIVING UNITS

LOCATED IN THE
SOUTHERN CALIFORNIA DISTRICT



FEDERAL HOUSING ADMINISTRATION

LONG BEACH INSURING OFFICE
LOS ANGELES INSURING OFFICE
SAN DIEGO INSURING OFFICE

Revised May 1932

Office Copy
SAN DIEGO
BUILDING CODE
Ordinance No. 3674 (New Series)
1948 Edition



CITY OF SAN DIEGO
CALIFORNIA

Official Building Code

CITY OF LOS ANGELES
Department of Building
and Safety
Room 245, City Hall
Los Angeles, Calif.
Phone Michigan 5211 Ask for
Room 245

PLAN CHECK

M 5091

This check must be returned to the
Plan Check Department within
thirty days of the date of the check.
Use conditions on other side.

UNIFORM BUILDING CODE
1940 EDITION

UNIFORM BUILDING CODE
1940 EDITION

CODES AND REGULATIONS

The building industry, in which the tract builder plays such an important part, is controlled to a great degree by a myriad of rules and regulations, promulgated and enforced by national, state and local jurisdictional authorities. In addition, many tracts must operate under various deed and title restrictions which can, and do, have a major effect on the appearance, type, and location of buildings constructed within their boundaries. A further regulatory control is exercised, insofar as the merchant builder is concerned, by the requirements of various lending institutions and governmental mortgage insuring agencies, such as the Federal Housing Administration and the Veterans Administration.

In planning a tract, the builder is faced with developing the best community possible within a highly complex framework of rules which, in effect, regulate nearly every aspect of the finished product from lot size to kitchen cabinets. This is particularly true when financing must be arranged on a large scale.

APPRAISALS

There is a further controlling factor which, for the merchant builder, often acts as surely as though based on printed rules, and that is the evaluation or appraisal given his product by the mortgage lender. These evaluations can be, and very often are, based on local prejudices and points of view which lag far behind the best accepted concepts of housing.

THE NECESSITY FOR CONTROLS

It is certainly ridiculous to argue that all, or even most of the large body of rules should be abolished, since, in their absence, chaotic and substandard housing conditions would most certainly result. However, it is also true that their chief purpose is to provide minimum acceptable construction standards to protect the general public and the home buyer. They are, therefore, nearly always based on arbitrary criteria which, over a period of years, have been formulated to correct unacceptable practices in the planning and construction of conventional homes. As such, however good their intentions, they can act as deterrents to attempts to improve ways of living through more imaginative concepts.



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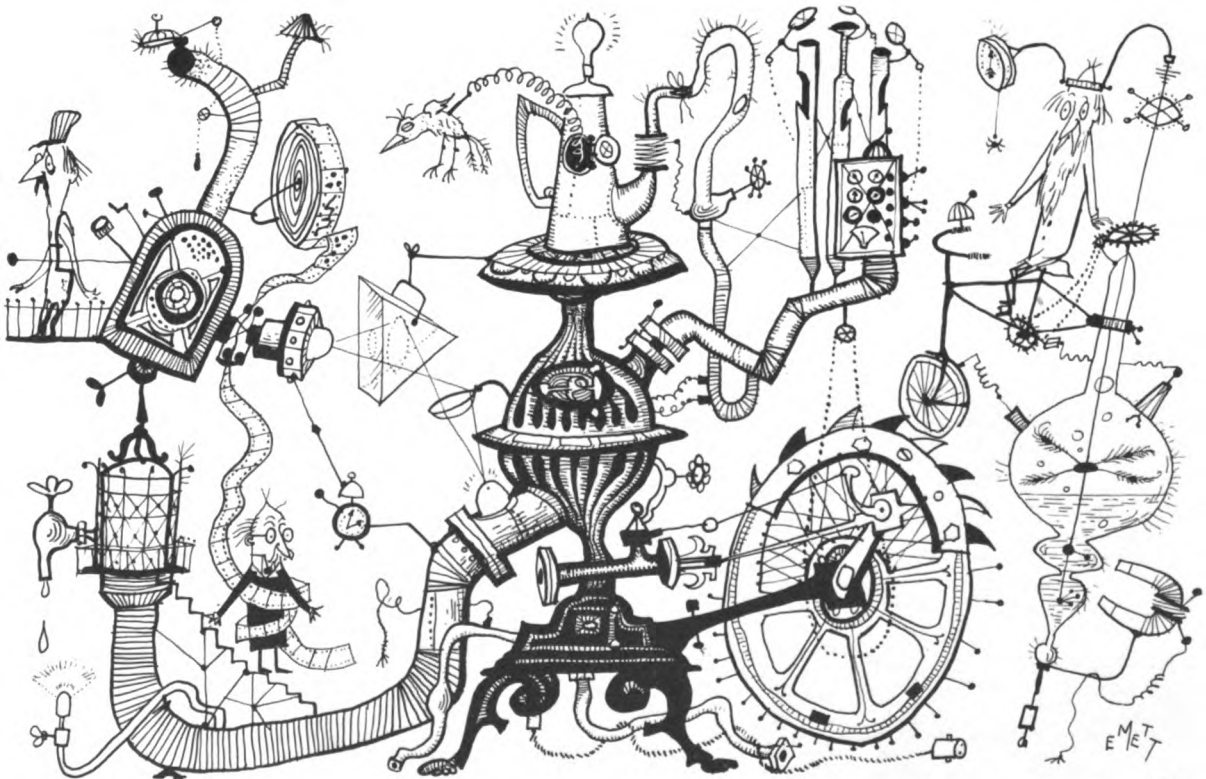
ZONING

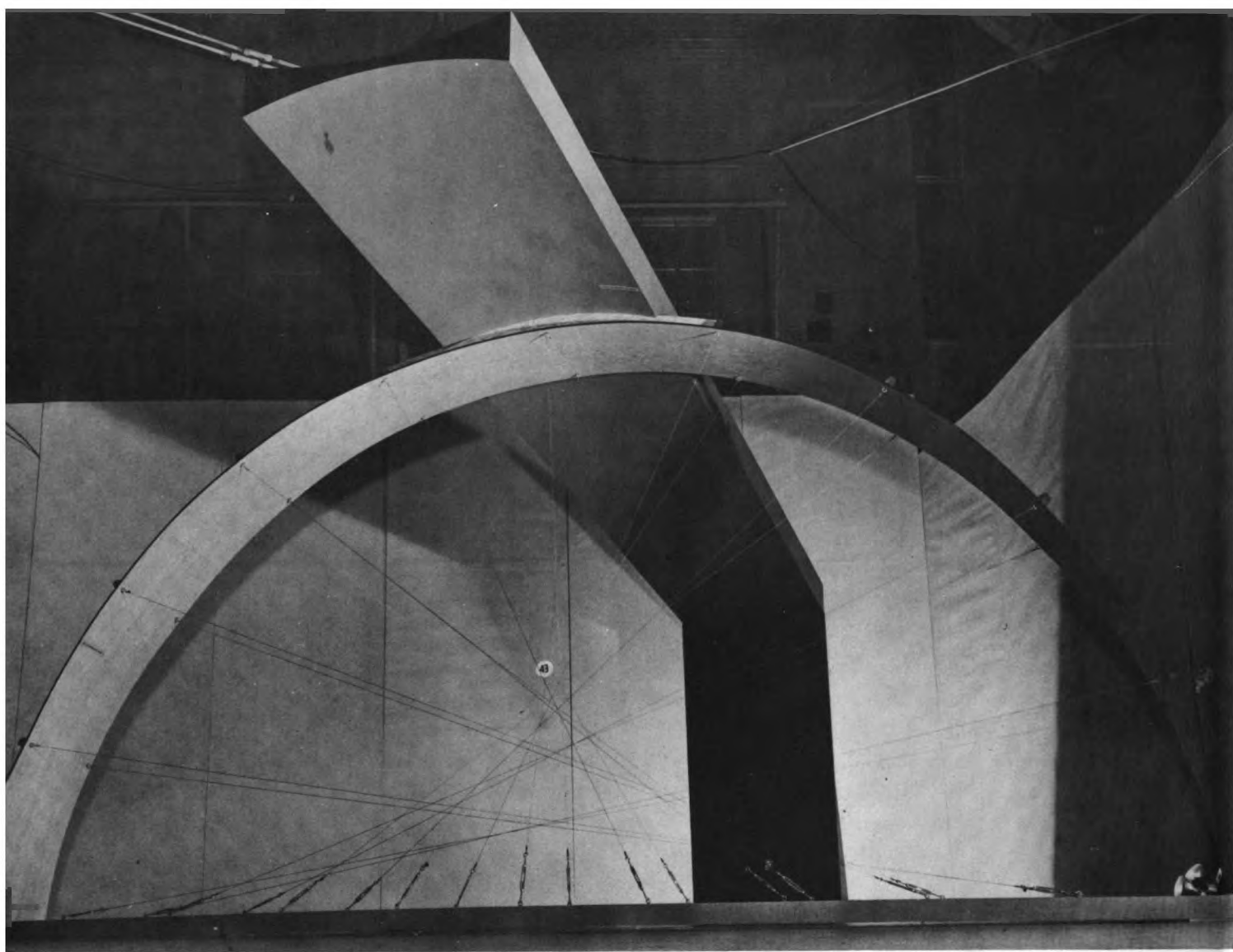
Zoning restrictions pertaining to setbacks, side-yards, lot sizes, and so forth are usually written for the laudable purpose of preventing the overcrowding of houses, but it could conceivably be demonstrated that, on a given neighborhood plan, the concentration of housing units in certain areas to provide proportionately larger open community spaces would result in a more pleasant place in which to live.

As another example, can anyone positively declare that the usual Southern California tract, with its uniform rows of houses set back the legally required twenty-five feet from the street, provides more satisfactory living, or is more esthetically satisfying than the enclosed street façades and garden courts of Mexican colonial towns designed for a similar climate?

BUILDING CODES

Still further regulations control not only the basic design elements of the house, but to a very large degree its construction and mechanical components, through the various local and state building codes. The restrictions imposed by these codes have been a very real deterrent to technical advances in tract construction; advances which are becoming increasingly necessary if the merchant builder's houses are to be produced at a price within the reach of the low-income family.

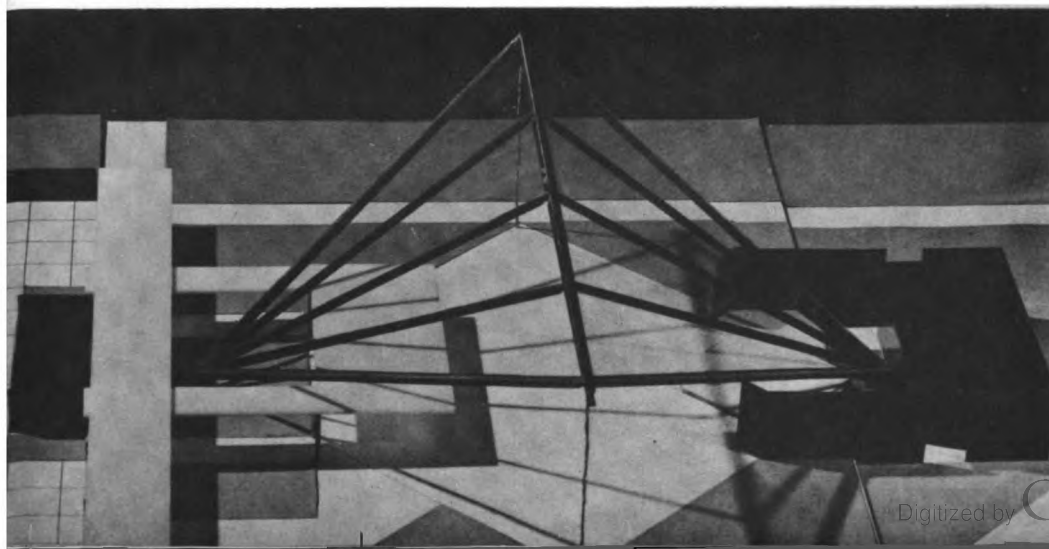




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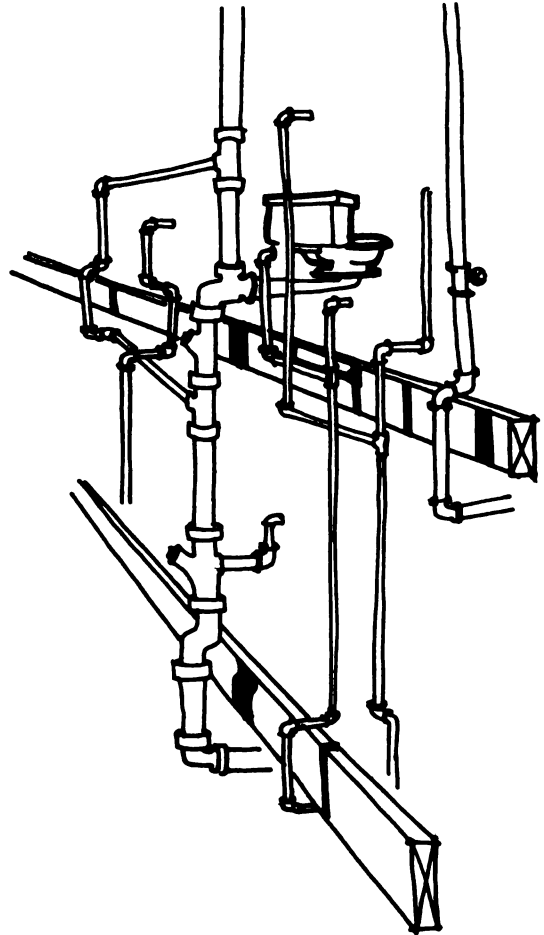
Progress must be initiated in mechanical trades as well as structure

2



Too many codes regulate by specifying material and size requirements, rather than by defining the desired result—thus restricting, and in some cases eliminating, the use of new and potentially superior methods of construction.

The plumbing system of today's tract house is unchanged in its essentials from that of thirty or forty years ago in contrast, for example, with the spectacular improvement in many of the fixtures and appliances it serves. The chief reason for this condition is that instead of approaching the problem from the standpoint of efficient hydraulic design, the system is merely laid out to comply with code requirements, unchanged for many years, and which, however good in intent, cannot be expected to represent the ultimate limits of engineering knowledge.



PERIODIC REVISION

The answer to all these problems can only be found in research and experimentation in every phase of home building; in the development of new materials and methods of construction; and in imaginative residential design and site planning. Unceasing efforts must be directed toward the revision of outmoded ordinances when they restrict the development of better and cheaper housing solutions.

CHECKING
Bank of America
NATIONAL BANK ASSOCIATION
DEPOSITED FOR ACCOUNT OF

NAME _____	
ADDRESS _____	
DATE _____	19__
	DOLLARS CENTS
CURRENCY _____	
COIN _____	
CHECKS (PROPERLY ENDORSED)	
LIST BY BANK NUMBER SEPARATELY, BELOW, EACH CHECK COMPRISING THIS DEPOSIT.	
1	
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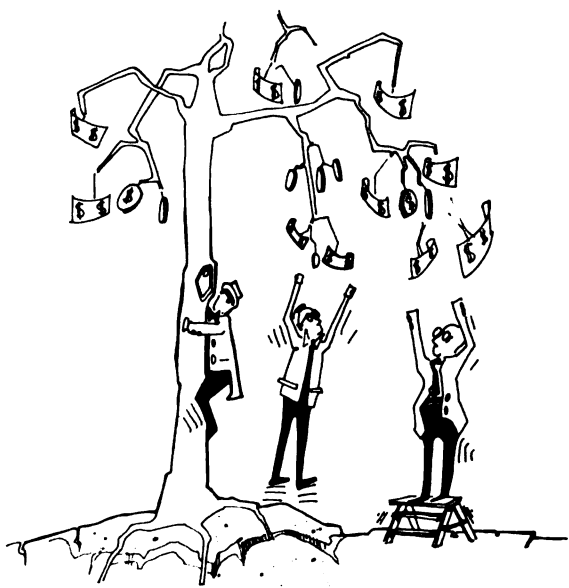
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FINANCING

Financing, both for the builder and buyer, is the life-blood of the home building industry, for when the sources of capital are restricted, the volume of tract building immediately declines. In the later half of 1956 for example, despite a continually growing population with an increase of ten percent over the previous year in personal income and the number of people employed, and with the expenditure for new plants rising over forty percent, the number of home building starts decreased by one quarter. This was caused almost entirely by the fact that capital became more difficult to obtain, both as a result of government efforts to control inflationary tendencies of easy consumer credit, and through the demand for money from other sources.



THE MONEY MARKET

Money is a commodity like beans or wheat, and home mortgages must compete for a share of the market in which the factors of interest, time, and risk combine to establish the investment's attraction. In some recent periods, the large expansion of industrial plants and increased interest rates of government bonds have tended to divert money formerly available to home mortgages, whose chief attraction is their high rate of return. Again when interest rates for other types of investments drop, large institutional investors buy home mortgages because of their yield.

Home Buyer Loans

The scope of this book is limited to the effects of economics on the growth and the development of the home building industry, and it can be assumed that the builders themselves are well aware of the problems through everyday experience. But for the potential home buyer, whose purchase is almost certain to be the largest financial transaction of his life, a brief description of the factors involved may be in order.

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The vast majority of builders' houses are purchased on the basis of a long-term mortgage since volume sales depend on the offer of terms based on the lowest possible down payment and monthly rates within the buyer's budget. The buyer must therefore qualify for a mortgage or loan for the purchase price, in which the house itself becomes the security upon which the money is borrowed.

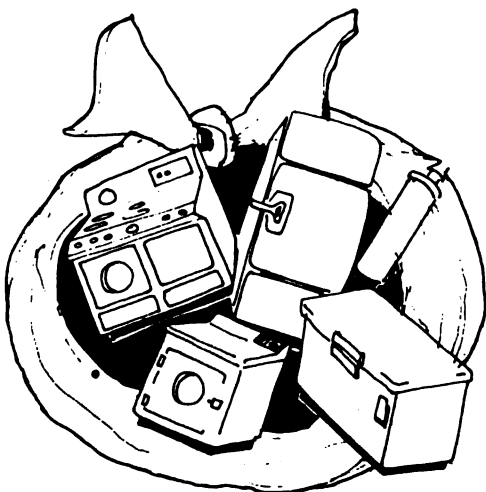
The three main types of loans available to the home buyer are the so-called "conventional", the F.H.A. insured loan, and the G.I. loan guaranteed by the Veterans Administration.

The Conventional Loan

The conventional loan, borrowed from a lending institution such as a savings and loan association, bank, or insurance company, makes up about half of today's home loans. The percentage of the appraised value which can be borrowed is based on State laws or company policies, and is usually much lower than the government insured loans in which the F.H.A. insures the lending agency against any loss of principle as a result of the mortgagor's failure to meet the terms and conditions of the mortgage.

The F.H.A. Insured Loan

F.H.A. insured loans are available at 5 percent interest plus an insurance fee of $\frac{1}{2}$ percent, computed monthly on the outstanding principle. In addition a processing fee is paid by the mortgagor. It has advantages for the tract house buyer in that he may borrow up to 90% of the appraised value of the property over a long term, while the payment may include all the necessary costs on a budget plan. In addition, the F.H.A. sets minimum construction standards and supervises the construction.



Through the efforts of governmental agencies the development of the "package mortgage" has been of particular interest to the home building industry, since the cost of equipment and appliances can be included in the loan to provide a more fully equipped house.

FEDERAL HOUSING ADMINISTRATION

No. _____
(To be inserted by FHA)

DESCRIPTION OF MATERIALS

Property address _____ City _____ State _____

Mortgagor or Sponsor _____

Contractor or Builder _____

INSTRUCTIONS—

Mark an X in each appropriate box. "Misc." and describe under "Other" or shown will not be covered by instructions in the enclosed instructions.

GENERAL—The contract is to be completed by FHA. The specifications, and any applicable

CITY OF REDONDO BEACH—BUILDING DEPARTMENT

APPLICATION FOR BUILDING PERMIT

1. EXCAVATION:

Bearing soil, type: (describe) _____

Basement excavations: B _____

2. FOUNDATIONS:

Footings: Concrete mix _____

☐ Footings: Reinforced _____

Ext. found. wall material _____

Int. foundation wall material _____

Columns: Material and size _____

Girders: Material and size _____

Sills: Material and size _____

Waterproofing (describe) _____

Piles: Material _____

Termite protection: Material _____

Window areaway walls: Material _____

Stair areaway walls: Material _____

Footings drains (describe) _____

☐ Coal bin: Material _____

3. CHIMNEYS:

Material _____

Chimney-cap material _____

Incinerator (describe) _____

4. FIREPLACES:

☐ Solid fuel; ☐ gas-burning; ☐ circulator type; ☐ imitation type. Size of fireplace opening _____

PLANS FILED _____ PERMIT NO. _____
TYPE OF BLDG. _____
GROUP _____ DATE ISSUED _____
FIRE ZONE _____
BLDG. ZONE (ORD. 1161) _____ PLANS CHECKED _____
SETBACK (FRONT _____
BUILDING (SIDE _____
LINES (REAR _____

APPLICANTS DO NOT FILL IN ABOVE LINE

OWNER'S NAME _____
(ADDRESS) _____ CITY _____
(TEL. NO.) _____
ARCHITECT'S NAME _____
(ADDRESS) _____ CITY _____
(TEL. NO.) _____
CONTRACTOR'S NAME _____
(ADDRESS) _____ CITY _____
(TEL. NO.) _____ STATE LICENSE NO. _____ CITY LICENSE NO. _____
Gas or oil heater vents (describe) _____ Water heater vent (describe) _____



5. FINISH FLOORING: (Wood only. Describe other finish flooring under item 21.)

LOCATION	ROOM	SPECIES	GRADE	SIZE	FINISH
First Floor					
Second Floor					

In addition, the budget plan used for F.H.A. mortgages provides a method of combining all carrying charges and costs including interest, amortization, F.H.A. insurance premiums, taxes, assessments, fire insurance, etc., all in equal monthly payments.

G. I. Loans

On a G.I. loan, which can be made to any qualified veteran, the government guarantees the lending agency up to \$4,000 in case of loss through default. As in the F.H.A. loan, the percentage of allowable loan to the purchase price is high, the interest rate low, and the terms may be of long duration. Since World War II veteran's benefits have now expired, the term "veteran" refers to a veteran of the Korean police action.

Appraisers, appointed by the Veteran's Administration, give an appraisal on the house which cannot be exceeded by the purchase price and which limits the amount of the mortgage.

Principle—Interest—Amortization

The loan, of whatever type, is repaid on the basis of the following factors:

- **PRINCIPAL:** The total amount owed at any time to the mortgagee, or lending institution. On an amortized loan, the principal continues to decrease as the debt is reduced.
- **INTEREST:** The amount paid to the lender as a fee for the use of the money. This is usually based on a percentage of the principal, payable on a fixed monthly basis.
- **AMORTIZATION:** The reduction or liquidation of a loan thru regular payments at a flat monthly rate—a method popularized in the past twenty years by the F.H.A. In practice, the early payments are high in percentage of interest, and the proportion decreases as the principal declines.

THE STANDARD FORM OF AGREEMENT BETWEEN CONTRACTOR AND OWNER FOR CONSTRUCTION OF BUILDINGS

ISSUED BY THE AMERICAN INSTITUTE OF ARCHITECTS FOR USE
WHEN A STIPULATED SUM FORMS THE BASIS OF PAYMENT

THE SIXTH EDITION OF THIS FORM HAS RECEIVED THE APPROVAL OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA; THE CONTRACTING PLASTERERS' INTERNATIONAL ASSOCIATION; THE NATIONAL BUILDING GRANITE QUARRIES ASSOCIATION, INC.; THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION; THE PAINTING AND DECORATING CONTRACTORS OF AMERICA, AND THE PRODUCERS' COUNCIL, INC.

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THIS FORM IS TO BE USED ONLY WITH THE STANDARD GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION OF BUILDINGS.

THIS AGREEMENT made the.....
day of.....in the year Nineteen Hundred and.....
by and between



Article 1. Scope of the Work—The Contractor shall furnish all of the materials and perform all of the work shown on the Drawings and described in the Specifications entitled

.....
(Here insert the caption descriptive of the work as used on the Drawings and in the other Contract Documents)

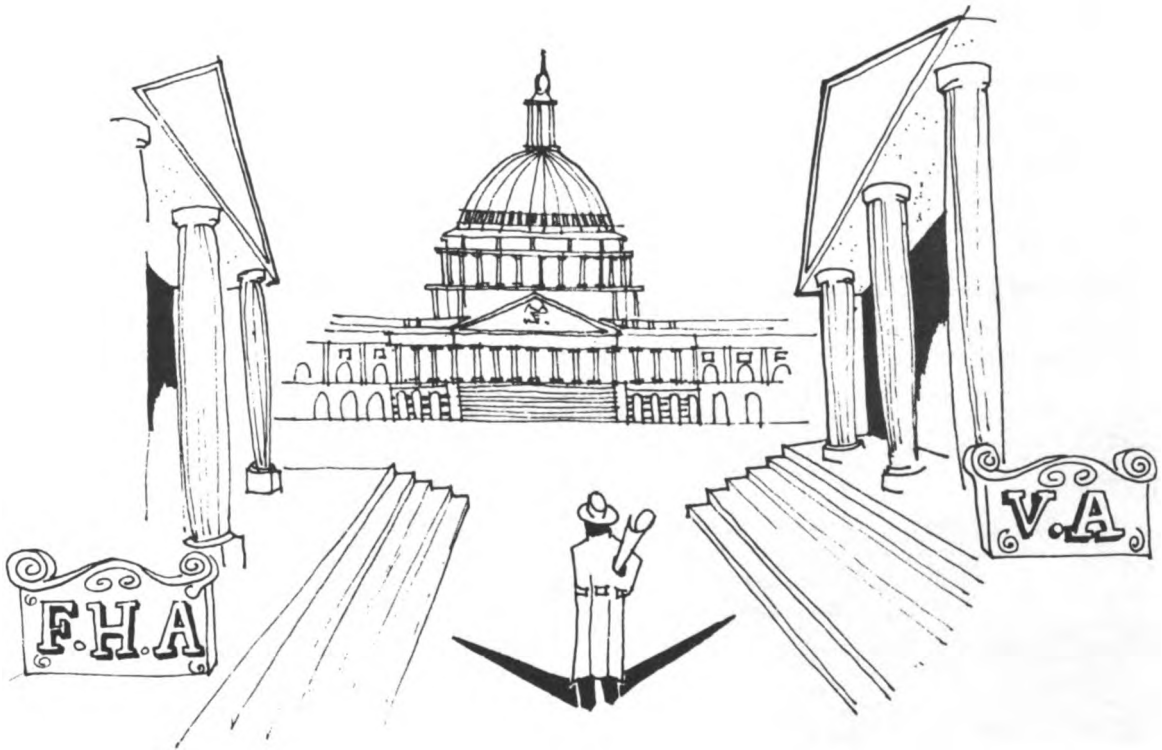
prepared by

acting as and in these Contract Documents entitled the Architect; and shall do everything required by this Agreement, the General Conditions of the Contract, the Specifications and the Drawings.

GOVERNMENT INFLUENCE

Government participation in the home loan market began as a means of enticing more bank and life insurance money into this field. From an economic point of view, the important distinction between the F.H.A. and G.I. loans and the conventional loan, is that the government sponsored home loan is more easily sold on the market. This is an incentive to lenders because they can buy or sell as the flow of money or attractions of the competitive bond market indicate. Builders like them because they allow sales to be made on the basis of a small down payment and low monthly terms.

To illustrate how the system sometimes works, a builder sells his houses at a price which includes his financing costs, and takes back an F.H.A. or G.I. loan. He sells that loan, usually at less than par value, to a local institution that has facilities for handling collections. However, the lender resells his mortgages in large quantities to distant banks, insurance companies, or to the Federal National Mortgage Association, commonly known as "Fanny May". From that time on, the ownership may change many times. If bond interest rates go up, or the flow of money changes, or some other buyer offers a profit, the owner may sell. The borrower's note and credit report are passed from stranger to stranger and his creditor may be a New York bank today and a Chicago insurance company tomorrow.



Notice of Completion

Notice pursuant to Section 1193.1, Code of Civil Procedure, must be filed within 10 days after completion.
See reverse side for complete requirements.

NOTICE is hereby given that:

1. The undersigned is OWNER of the interest or estate stated below in the property hereinafter described.
2. The FULL NAME of the undersigned is _____
3. The FULL ADDRESS of the undersigned is _____
4. The NATURE OF THE TITLE of the undersigned is: In fee.



Dated: _____

owner named
in paragraph 2 _____

STATE OF CALIFORNIA,

COUNTY OF _____

} ss. _____

The undersigned, being duly sworn, says: That _____ he is the owner of the aforesaid interest or estate in the property described in the foregoing notice; that _____ he has read the same, and knows the contents thereof, and that the facts stated therein are true.

SUBSCRIBED AND SWORN TO before me

on _____

Signature of
owner named
in paragraph 2 _____

(SEAL) _____

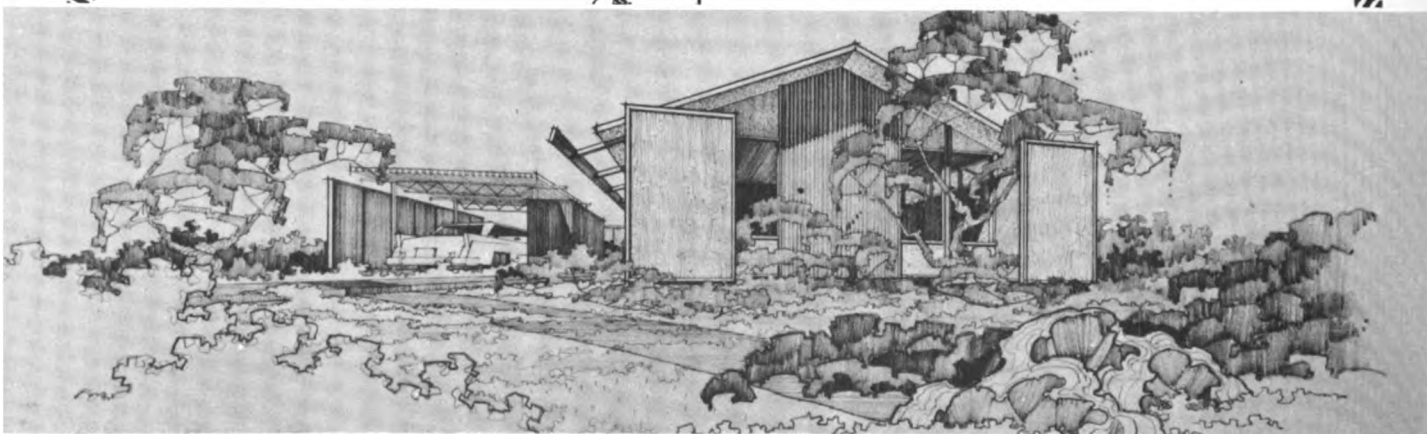
Notary public in and for said county and state.

Verification for corporate owner:

STATE OF CALIFORNIA,

} ss. _____

SPACE BELOW FOR RECORDER'S USE ONLY



SUBSCRIBED AND SWORN TO before me

on _____

(SEAL) _____

Notary public in and for said county and state.

Fanny May

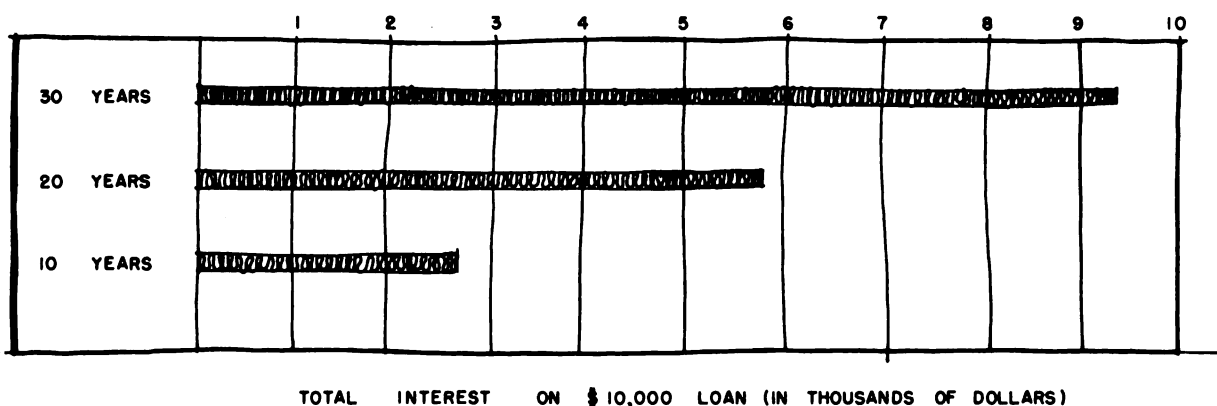
FNMA is a governmental central mortgage bank authorized to purchase F.H.A. and G.I. mortgages below \$15,000. It is intended to be self-liquidating, in that every seller is required to buy a small percentage of the mortgage principal in FNMA stock. It acts as a secondary market for mortgages, the objective of which is to provide a degree of liquidity for mortgage investments, thereby improving the distribution of capital available for residential mortgage financing. This is done by purchasing mortgages in areas where financing is needed and later selling to private investors.

Interim Financing

The builder, in order to acquire capital to finance tract construction costs, must obtain an interim loan covering the period until the house is remortgaged by the buyer. Once the sale is consummated however, his essential interest in the property is ended. It is the mortgage banker, with the backing of the federal agencies, who then must accept the problems and responsibilities of the borrower's loan during the succeeding 15 to 30 years. The process serves to illustrate the interdependence of the builder, the buyer, and the lender.

Interest Costs

As a final note it may be well to give a general idea of the actual costs to the buyer for the present-day opportunity to purchase a home with very little cash in hand. For example on a \$10,000 loan at 5% interest, the following are the interest costs for varying items: for ten years \$2,728; for twenty years \$5,840; while for thirty years these costs increase to \$9,328. On a long term loan, therefore, the purchaser must repay a sum approaching twice the original amount borrowed.





1

2



Chapter VII

CONCLUSION

Conclusions do not indicate finality...
Today's knowledge can only provide a place to start...



THE CHALLENGE

We can now briefly sum up the points discussed in previous chapters, in an attempt to clarify the present status of the home building industry, its accomplishments and failures, its impact on the American way of life, and its need for improvement.

Much has been written and said of the destructive consequences to the community of the indiscriminate growth of tract housing. Since most homes today, and in all probability an even higher percentage tomorrow, will be constructed by the merchant builder, any improvement must necessarily come primarily from this source in cooperation with the architectural profession, the governmental agencies, and the lending institutions.

The shortcomings of present day methods of tract development extend far beyond the individual house. As we have already pointed out, the real goal is the creation of a truly pleasant way of living geared to the tempo of modern life. This is something which demonstrably has not been approached except in isolated cases.

Surely it is not expecting too much to believe it possible for a nation with such a large proportion of the world's wealth, physical resources, and technical abilities to provide far better answers to the problem of housing its citizens than the examples to be found in the suburban areas of our metropolitan centers.

Admittedly the problems are complicated and encrusted with the forces of habit and inertia. Admittedly the solutions involve the revision of regulations and codes, the thinking habits and prejudices of a great number of people, and above all the education of builders and buyers in the true potential of the home building industry. But most of the problems have already been attacked, and solutions are being found in schools of architecture, in planning and research institutes, and in isolated instances, by progressive builders. The problem is to apply this experience and knowledge to the benefit of the buying public and the country as a whole.



With any commercial product, there is usually a lag between theoretical development and the article available for purchase. In the case of the tract house, or more particularly the total community environment, the lag goes far beyond any reasonable expectations. New gadgets, appliances and "features", like the superficial ornaments applied to a new car, are added to homes whose design conception goes back twenty years. The whole trend on the part of the building industry is to follow public taste along familiar lines rather than to lead the way toward new and better ways of living.

The stock excuse for the reluctance of builders to improve the generally accepted standards is almost always "cost", and in today's competitive market this is to some degree true. But if home buyers could really be given the opportunity to visualize the possibilities inherent in good land planning and community development, none but a prejudiced minority would be satisfied with existing conditions. Certainly a nation that is universally willing to spend half a year's salary for today's oversized, overpowered, and overequipped motor cars can find the means to pay for a good home environment if given the opportunity.

America is growing and changing at a tremendous pace, a pace that is hard for most people to appreciate. Inevitably the housing problems resulting from this expanding and moving population, with its changing ways of living, are going to catch up with us. The time to start solving them is now!

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